

THE IRON AGE

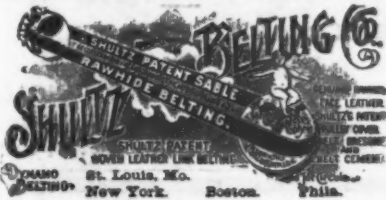
A Review of the Hardware, Iron, Machinery and Metal Trades.

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(Signed) LIEUT. ALBERT S. JONES,
Secretary of the National Rifle Association of America.

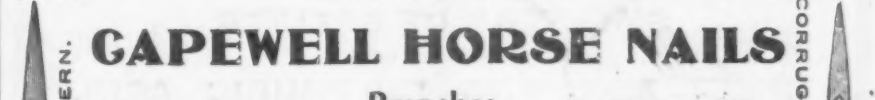
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THE IRON AGE

THURSDAY, AUGUST 6, 1903.

The Buffalo & Susquehanna Iron Company.

Before considering in detail the arrangement of the plant of the Buffalo & Susquehanna Iron Company a few general remarks may prove of interest. The plant of this company is located at Buffalo, N. Y., and is connected with the harbor by a canal about 2000 feet long. This canal is being built jointly by the Pennsylvania Railroad, the Buffalo & Susquehanna Railway and the Buffalo & Susquehanna Iron Company, between whose properties it is situated. Upon the completion of the canal the ore steamers will be able to come direct to the iron company's docks. Buffalo was selected as the location of the plant because it was regarded as one of the best points in the United States for the economical assembling of the raw materials required in the manufacture of iron, and because, when made, the pig iron is in the

bing, Minn., in the Mesaba Range. Each property covers 80 acres of land. Although the exploration of the latter property is not as yet complete, 20,000,000 tons of ore have already been shown up. The ore obtained from the former property is coarse and is suitable to mix with the finer ore obtained from the latter. The Iron Mountain mine is already shipping its product and the Susquehanna mine (at Hibbing) will be operating this fall. The company's coal fields are situated at Sykesville, Pa., in the Reynoldsville Basin, and cover 2000 acres of land, underlain with upward of 12,000,000 tons of excellent coking coal. The main shaft has reached the coal seam and the boilers, hoisting machinery and the plant in general are being rapidly erected.

Although work was commenced on the plant at Buffalo less than a year ago, such progress has been made in its construction that it is expected to have one furnace in blast this fall. The plant consists of two blast fur-

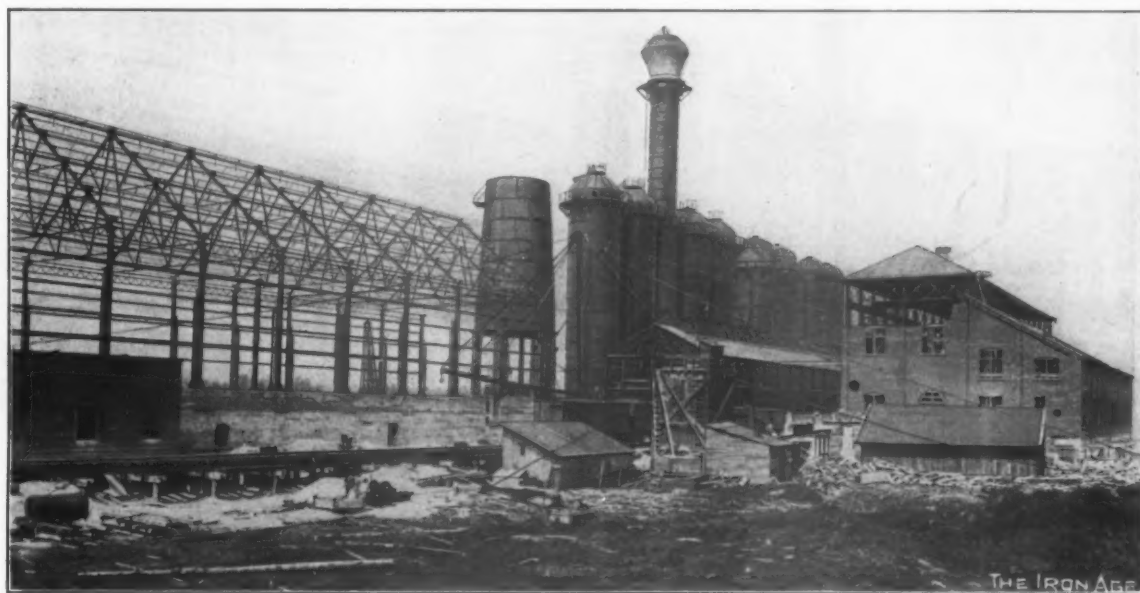


Fig. 1.—View of Furnace, Boiler House and Engine House.

THE BUFFALO & SUSQUEHANNA IRON COMPANY.

midst of a large market, which is at present incompletely supplied by local furnaces. Its chief advantage in the assembling of the raw materials is the fact that the ore can be unloaded by the lake steamers directly into the storage piles, and thus need not be transported a considerable distance by rail, as is necessary for furnaces situated in the Pittsburgh district. This saving is a considerable one, and is not offset by the increased cost of coke. In the distribution of their products Buffalo furnaces have the advantage of the Erie Canal and its low freight rates, in addition to the same excellent railroad facilities that Pittsburgh enjoys.

The Buffalo & Susquehanna Iron Company is one of the few independent companies that own their own iron ore mines and coal fields. This company even control the transportation of their raw materials, in that these will be carried by closely affiliated corporations. Thus the iron ore will be brought down the Great Lakes by a line of steamers, of which the "Frank H. Goodyear" is the pioneer, and the coke will be brought direct to the furnaces from the coal fields of Pennsylvania by the Buffalo & Susquehanna Railway Company. The ore properties of the iron company are situated at Iron Mountain, Mich., in the Menominee Range, and at Hib-

naces and the necessary stoves, blowing engines, pumps, cranes, &c. As will be noticed from the accompanying ground plan, the cast houses are at each end of the plant, and between them are the furnaces, stoves, stacks and boiler house. By this arrangement the railroad tracks, which run on each side of the cast houses, are close together and take up a minimum amount of yard room.

The furnaces are 80 feet high, 14 feet at the throat, 20 feet at the bosh and 13 feet at the crucible. These dimensions were chosen as being most satisfactory for the manufacture of foundry iron, which the company will produce. Together these furnaces will make 600 to 700 tons of foundry pig iron per day, or about 225,000 tons per year. Each furnace is equipped with four fire brick stoves and one stack. The stoves are 102 feet in height and 22 feet in diameter. They have central combustion chambers, and are of the type patented by Julian Kennedy of Pittsburgh. The stacks are 175 feet high and 12 feet in diameter, and are lined with fire brick.

The engine house, which contains the blowing engines, pumps and electrical machinery, is 204 feet long by 88 feet wide. The blowing engines are four in number and of the cross compound vertical steeple type. They were built by the Allis-Chalmers Company of Mil-

waukee. They are of 2000 horse-power each, or 8000 horse-power in all. The high pressure and low pressure steam cylinders are 42 inches and 80 inches diameter, respectively, and the air cylinder 84 inches diameter. The stroke for all is 5 feet and the number of revolutions per minute about 45. The fly wheels are 24 feet diameter, and weigh 50 tons each. The main shaft of each engine is 28 inches diameter and weighs 28 tons. In all, the engines weigh 500 tons each, or a total of 2000 tons. These engines are being erected by an overhead electric travelling crane of 30 tons capacity. The pumping plant consists of three large compound cold water pumps, built by the Snow Steam Pump Works of Buffalo, N. Y.; three compound feed pumps for the boilers, and an air pump for the condenser. The cold water pumps have 18-inch high pressure, 30-inch low pressure and 22-inch water cylinders. The stroke is 36 inches, and the capacity of the three pumps in 24 hours is 12,000,000 gallons. The boiler feed pumps have 10-inch high pressure, 16-inch low pressure and 8½-inch water cylinders. Their stroke is 18 inches, and their capacity 1500 gallons per minute. In this same building there are also three 250 kw. direct connected generators (direct current, capacity

Buffalo & Susquehanna Railway, and will be emptied directly into the bins. From the latter the raw materials will be taken by electric cars and emptied into skips, which in turn will take them up the inclined skipways D to the furnace top, where they will be dumped automatically into the furnaces E. It will be noticed from the plan of the works that the hoisting engines are on the opposite side of the furnaces from the skipways and that the ropes run over the top of the furnaces. This takes away the engines from over the skip pit and makes the steam connections shorter than usual.

By this general arrangement of the plant the materials are handled most economically, and the company should effect a considerable saving thereby. It will be noticed that while navigation on the lakes is open the ore can be unloaded directly into the bins and the re-handling necessary at practically all other plants saved. Similarly, the coke will be emptied into the bins without rehandling. Furthermore, the railroad tracks run on both sides of the cast houses, so there need be no re-handling of the pigs at that point.

Credit for the arrangement of this plant belongs to Julian Kennedy of Pittsburgh, who designed it in con-

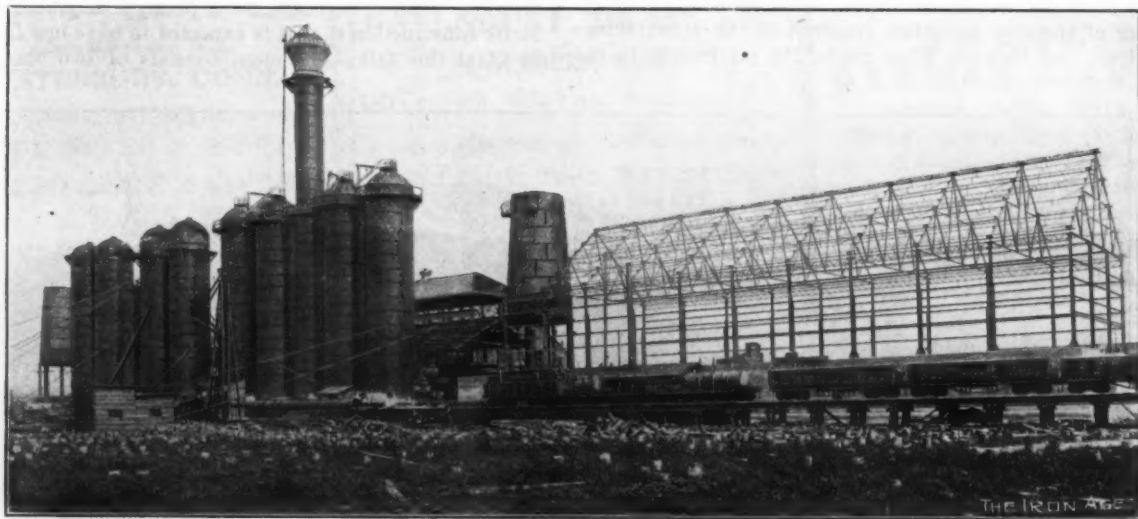


Fig. 2.—View of Stacks and Stoves.

THE BUFFALO & SUSQUEHANNA IRON COMPANY.

1000 amperes, 240 volts), made by the General Electric Company of Schenectady, N. Y. The engines have 19-inch cylinders and 27-inch stroke, and make 150 revolutions per minute.

The boilers, which are 24 in number, are arranged in 12 batteries in a building 364 feet long by 41½ feet wide. They have a total of 6000 boiler horse-power, and are of the Cahall horizontal type, built by the Aultman & Taylor Machinery Company of Mansfield, Ohio. They are fired by waste gases, but there is a small coal grate, which will be used only when the furnace gases are not sufficient to keep up steam. This grate is 8 feet 6 inches by 3 feet 6 inches. The gas burner nozzle is 4 x 23 inches. The boiler drums are 36 inches diameter by 23 feet 6 inches, and the total area of heating surface of all the boilers is 63,360 square feet. There are 250 4-inch tubes in each battery of boilers. So as to prevent the formation of scale the water will be treated with chemicals and then filtered before entering the heaters.

When the plant is completed the vessels which bring the ore and the limestone will come via the canal to the company's wharves, as shown in the accompanying plan. They will unload at A into either the ore storage piles B or directly into the bins C. These raw materials will be taken from the vessels by automatic machinery and carried by overhead bridges to the stock yard. From there they will be picked up by grab buckets and deposited in the bins. The latter will be in a double row, so that coke and ore may be loaded in them at the same time. The coke will come in 44-ton automatic dump cars by the

junction with William A. Rogers, president of the company, and Hugh Kennedy, general manager of the company. When operating, the plant will be under the personal supervision of the latter two men. Mr. Rogers is senior member of the well-known firm of Rogers, Brown & Co., and is also connected with a large number of blast furnaces. Mr. Kennedy has been associated for years with several of the leading iron and steel companies as both manager and director, among these being the Isabella Furnaces.

Pacific Coast News.

SAN FRANCISCO, CAL., July 27, 1903.—The matter of Indian supplies is now agitating the local commercial community. Our merchants were invited to bid, but the result shows that it was a mere empty formality as far as Washington authorities were concerned. The supplies covered a great range of articles and, geographically speaking, belong to the coast, with, of course, the understanding that the Government should not have to pay more than elsewhere. The principal supplies were in the lines of groceries and hardware, and bids were submitted by our leading firms. In the hardware line proper Baker & Hamilton put in bids; Holbrook, Merrill & Stetson bid on stoves; W. W. Montague & Co. on stoves also; the American Steel & Wire Company on nails and wire, and the Dunham, Carrigan & Hayden Company on hardware. The lowest possible prices were made, in some cases the margin of profit being little or nothing.

The firms wanted to secure the orders and thus establish a precedent for the Government's coming to this coast for articles to be used on the coast and which could be supplied as cheap as or more cheaply than from the East. Very much to the surprise of the bidders, however, they were informed that their bids were not legitimate. What is the exact meaning of this no one in business here has yet been able to discover. Local Indian Agent Good thought that the contracts should have been awarded to our merchants, but all was of no avail. In fact, our merchants were treated worse than cavalierly and they have determined that the matter shall not be left to the Indian Department. They have been informed that it shall be reconsidered and have still some hope that justice will be done. It is not so much a matter of dollars and cents as it is one of principle. Other things being equal, the lowest bidder should be awarded

long since the Pacific Mail and the companies that are connected with them in doing the business of this port with the Orient—the Occidental & Oriental Steamship Company and the Japanese Steamship Company—had matters all their own way, but now rates are being cut right and left. No concessions could be had previously. Now, however, the Pacific Steel & Hardware Company have been advised that a cut of 60 per cent. on Oriental freight would be made. Some time previously, when the Great Northern made a cut of \$6, this company were offered the same rate, but after the goods were ready for shipment it was withdrawn. This will give our local houses a good chance to do a fair trade with the Orient in hardware, machinery and other goods. And as soon as the Chinese company begin to make a bid for Eastern trade it will facilitate still more the shipment of American manufactured goods in transit.

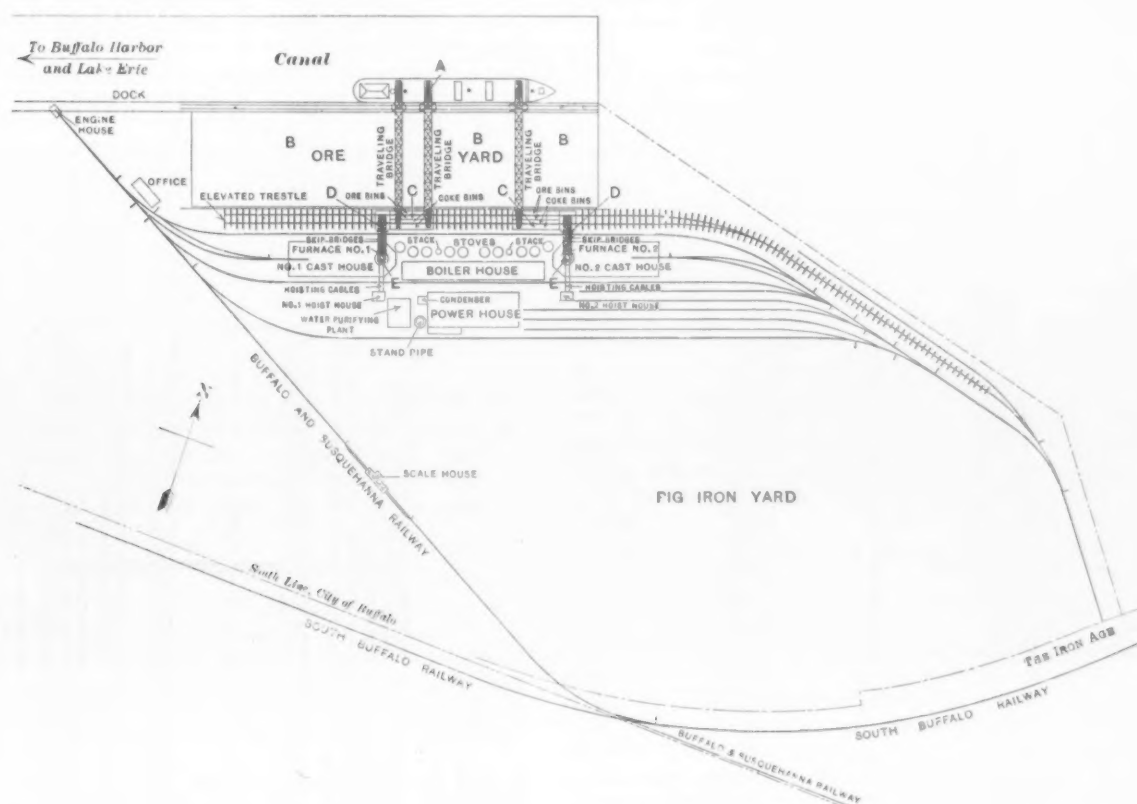


Fig. 3.—General Plan of Works.

THE BUFFALO & SUSQUEHANNA IRON COMPANY.

the contract, and in most cases the bids from this city were the lowest. Here the supplies can be sent to their destination for a comparatively low rate of freight, much lower than they can from Eastern points. This much is in our favor and should be taken into consideration. The lowest price is the lowest price laid down at place of destination. In many cases, such as coffee, sugar, syrup, &c., San Francisco is a primary market, and though not to the same extent in goods of other descriptions, it is in many. Iron wire and wire nails, agricultural implements, stoves, sheet iron pipe, &c., are manufactured here and can be supplied cheaper than from any point in the East, and as to other articles of hardware, &c., they can by cutting profits be supplied as cheap or cheaper. This contest must now be fought out by our merchants, and as they have right on their side they expect to win. They base their claims to the trade altogether on quality and cost at point of delivery, and if they cannot obtain justice on this basis they will know the reason why.

A keen contest for the trade of the Orient in certain articles is about to begin. The China Commercial Steamship Company, who seek a share of the carrying trade of this coast, have commenced in good earnest a contest for the transportation business from San Francisco. Not

General business has been somewhat quiet for the past couple of weeks, but its volume is larger than that of 1902.

J. O. L.

Frank H. Buhl and Peter L. Kimberly of Sharon, Pa., are interested in an extensive irrigation enterprise in Idaho, which will involve an investment of several millions of dollars. James P. Whitla, the former secretary of the Sharon Steel Company, is secretary of the irrigation company.

It was announced in the *New York Times* of the 29th ult. that the new Edison storage battery is now ready for commercial use, all the tests applied to it having proven its reliability. It has been for some weeks in a department store delivery wagon in this city, having displaced one of the old type of battery, and has exceeded the guarantee given for it. The old battery weighed 1260 pounds and had an endurance of 25 miles only. The Edison battery weighs 650 pounds and has a life of 37 miles. The inventor made a run to Atlantic City recently over the roughest road that could be found—about 100 miles—without mishap, and also went up Eagle Rock in the Oranges, near Newark, with no difficulty whatever; this is one of the heaviest grades in

the vicinity. Edison asserts that next year he will go to Chicago at an average speed of 25 miles an hour without a breakdown. The batteries are made at present for 25, 50, 75 and 100 miles endurance, but can be made

very different, the entire action being chemical instead of mechanical. In its usual form a storage battery is merely two lead plates filled with a high oxide of lead for the positive plate and spongy lead for the negative plate. These are immersed in dilute sulphuric acid and

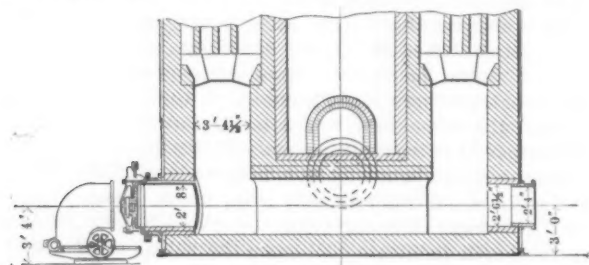


Fig. 6.—Section through Chimney and Cold Blast Valves.

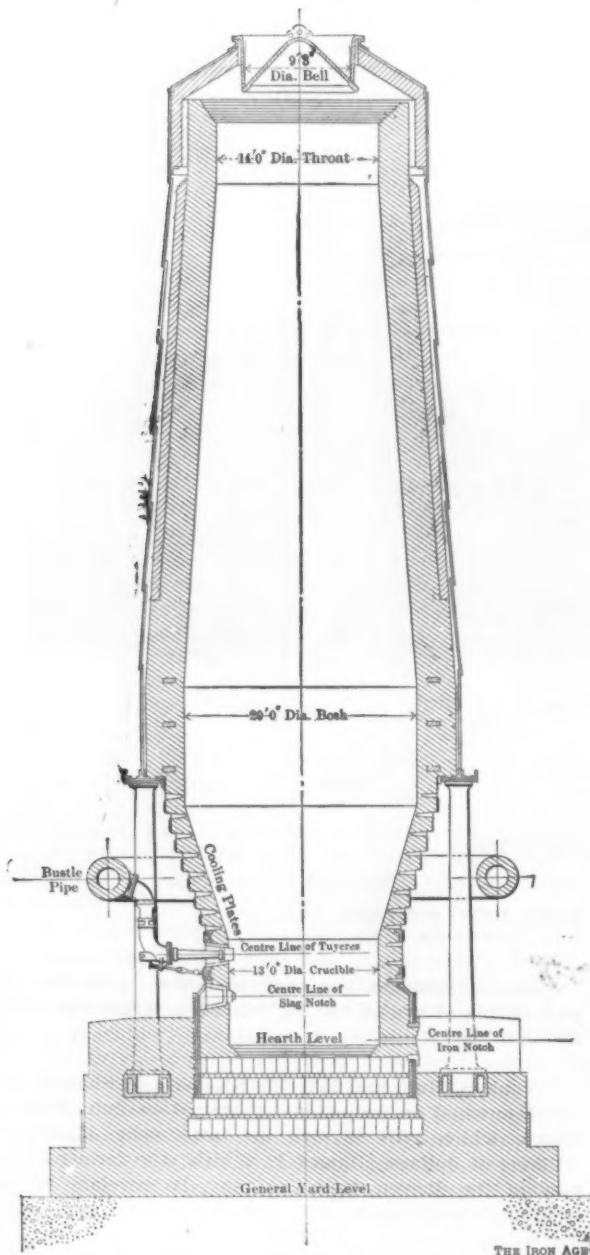


Fig. 4.—Section of Blast Furnace.

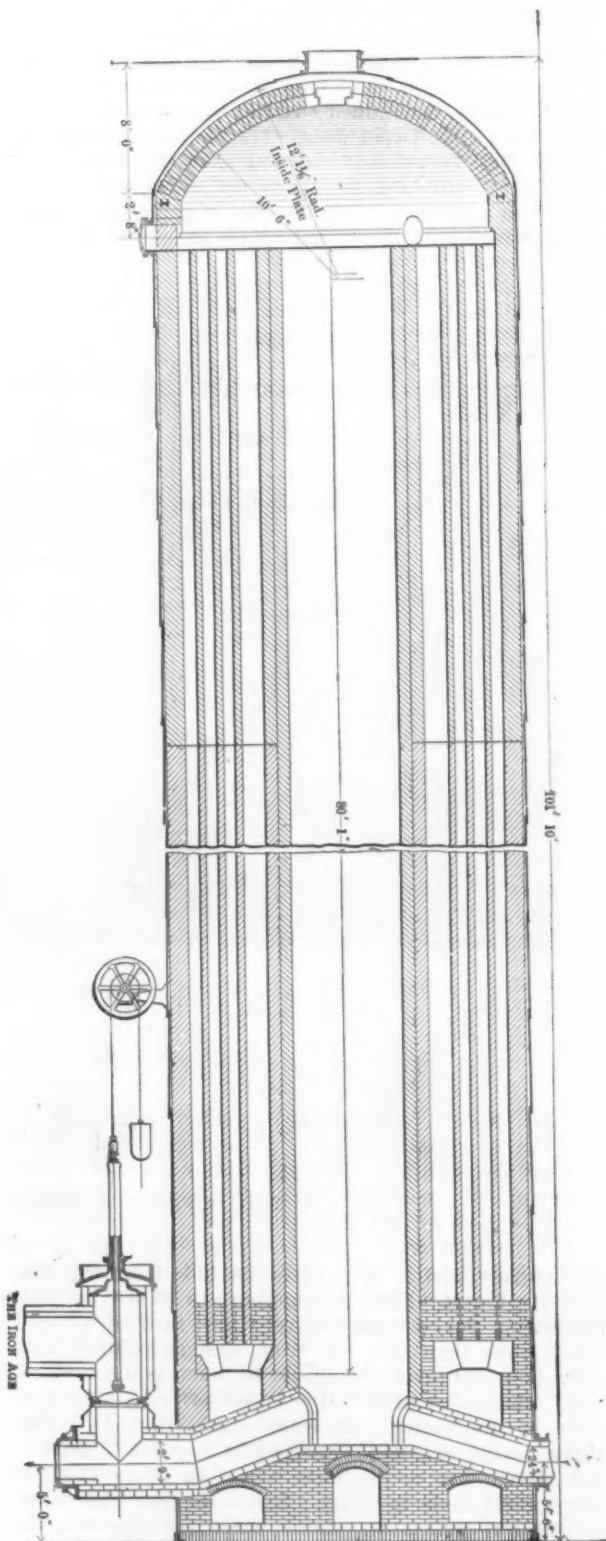


Fig. 5.—Section through Hot Blast Valve and Gas Burner.

THE BUFFALO & SUSQUEHANNA IRON COMPANY.

larger or smaller. Only one a day can be made with the present facilities, but these last will be increased to supply all demands.

Erroneous ideas prevail in regard to the functions of storage batteries, many persons supposing that the electric fluid is bottled up in them very much as soda water is in its reservoir, under constant pressure, ready to be drawn off as occasion demands. The principle is

contained, or carried, in a wooden case lined with lead. When this apparatus is excited by a current of electricity passed through it a chemical action is set up in the materials or combination of them, and it is said to be charged with potential energy. When it is connected to a lighting plant or for power it at once begins to deliver current, generated by the reverse chemical actions which take place as soon as it is connected and ready for use, until the materials in the battery are exhausted.

Testing of Pyrometers.

Bureau of Standards Prepared to Calibrate Leading Types.

WASHINGTON, D. C., August 4, 1903.—The importance of an accurate knowledge of temperatures in many industrial processes, and especially in the manufacture of iron and steel, has induced the experts of the National Bureau of Standards to turn their early attention to the subject of pyrometry, and the correspondent of *The Iron Age* is authorized to state that the Bureau is now prepared to test for manufacturers the leading types of pyrometers commonly used in this country and to calibrate them on a uniform standard. The charge for this work, which is required to be made under the statute, will be merely nominal and wholly insignificant compared with the advantages gained.

It is, of course, well known that the character of the resulting products in many metallurgical and chemical operations, in the processes of annealing, tempering and galvanizing, and in the ceramic and glass industries, &c., is in a very large degree dependent on the temperature. Thus in the process of tempering and annealing certain kinds of steels a difference in temperature of 50 degrees C., and in some cases of 25 degrees C., produces a very noticeable difference in the resulting products. Before the introduction of reliable forms of pyrometers the manner of estimating these temperatures was by skillful guesses, dependent on the trained eye of the workman, a method which was by no means infallible. For this method of more or less approximate guessing the pyrometer substitutes a strictly accurate and scientific practice, which allows of an indefinite repetition of exactly the same working conditions; so that when once the best conditions are found for producing a given product the correct temperature may be recorded and the identical product can be exactly duplicated at any future time, the importance of which is being rapidly appreciated by manufacturers.

Pyrometers in Blast Furnaces.

Pyrometers have also been introduced and are now being extensively used in blast furnace operations to register the temperature of the hot blast and the gases in the down comer, resulting in more careful firing, greater economy of operation and more uniform products. The Bureau of Standards is advised, however, that the question of temperature has not received due attention in other branches of iron and steel manufacturing and in other industries, especially in those where the reproduction of products of certain grades is such a difficult and uncertain operation, due to a large extent, it is believed, to a lack of accurate determination of temperature conditions.

The growing importance of the subject of pyrometry in so many industrial processes was recognized by the National Bureau of Standards immediately after its organization, and Director Stratton has now completed the installation of facilities for the testing of all kinds of pyrometers under the direction of Drs. Waldner and Burgess, two very skillful experts in thermometry.

A thorough investigation by the Bureau of Standards of the condition of pyrometry in this country shows that it is far from being satisfactory, and much below that prevailing in the leading industrial countries of Europe. Pyrometers of the most varied forms are now used, and each of these is calibrated on a purely empirical scale, so that the difference in the indications of various pyrometers may amount to several hundred degrees, at least, at temperatures in the neighborhood of 1100 degrees C. (2000 degrees F.). Thus the calibrators of some pyrometers are referred to the expansion of a graphite rod, some to the change of resistance of a platinum wire, some to the thermal electromotive force set up between two dissimilar metals, and others to the change in volume or pressure of an inclosed mass of gas, &c. All of these, while reliable if used in the proper way, lead to entirely different temperature scales, unless they are all referred to some uniform standard. This is regarded by the

bureau as a question of the greatest importance, as the great difference in the indications of pyrometers now in use renders any interchange of experience between our engineers practically impossible, and this is a decided bar to one of the most important elements of progress.

This state of affairs is entirely unavoidable and is due to the fact that hitherto manufacturers in this country have had no place to which they could send their standards and have them calibrated, and it was, of course, entirely out of the question for any industrial concern to take up the elaborate work necessary to establish a reliable scale of temperature. It is the object of the Bureau of Standards to undertake work of this character, which will be of assistance to our manufacturers, engineers and scientists. The bureau has accordingly installed some of the leading types of pyrometers, where their operation can be carefully investigated by experts and such data can be gathered as will be of service to engineers and manufacturers. The bureau is at present prepared to calibrate the leading types of pyrometers up to about 1500 degrees C. (2700 degrees F.), and is engaged on a comparative study of the different types of direct vision and radiation pyrometers that are now found on the market, so that it will soon be in a position to calibrate all forms of temperature measuring apparatus.

Method of Calibration.

The calibration of pyrometers is carried out in electric furnaces, which consist of long porcelain cylinders, highly infusible, that are closely wound with a coil of nickel or platinum wire, through which the heating current is caused to flow. Inasmuch as the electric current can be so readily controlled, this affords a means of attaining very constant temperatures throughout a considerable region in the interior of the porcelain tube. If nickel wire is used a temperature of about 1300 degree C. (2400 degrees F.) can be readily attained, while if a platinum heating coil is used temperatures of over 1600 degrees C. (3000 degrees F.) can be maintained for considerable periods.

The standard pyrometers of the bureau, which consist of platinum and platinum rhodium thermo-couples and platinum resistance pyrometers, are checked from time to time by determinations of the "freezing" points (or, what is the same, the melting points) of several metals which are now known to a high degree of accuracy. The standardizations are made by immersing the thermocouple or platinum resistance pyrometer, suitably protected in porcelain tubes, in a large mass of the molten metal, and measuring the electromotive force of the couple or the resistance of the platinum pyrometer while solidification ("freezing") is taking place. During the process of solidification, which lasts for many minutes, the temperature of the metal remains constant to a few tenths of a degree. This is analogous to the determination of the freezing point of an ordinary thermometer in a mixture of melting ice.

Much special apparatus is now being designed and made in the instrument shops of the bureau, with a view to facilitating the calibration of pyrometers and all kinds of temperature measuring apparatus, from the temperature of liquid hydrogen to that of the steel furnace.

W. L. C.

An unlooked for sequence in the drainage of New Orleans is the appearance of hordes of ants which have become as threatening as the plagues of Egypt. They attack the wood work of houses and speedily destroy it, making their way into warehouses where costly goods are stored, and seem to be immune to insecticides. The presence of them in such quantities is said to be caused by the drying out of the soil. When it was saturated the ants could not breed in it; now that it is no longer wet the ants have multiplied in such numbers that they defy suppression. One gentleman is said to have been literally eaten out of house and home, the ants having tunneled the timbers in all directions so that nothing but a shell was left. Creosoted wood seems to be a preventive against the marauding insects, and many establishments have been started on such work.

Scotch Iron and Industrial Affairs.

Holiday Dullness.

GLASGOW, July 23, 1903.—We are now in the thick of the holiday season in Scotland, and there is little doing either in the exchanges or the factories. The iron warrant market closed on Thursday of last week till Tuesday of this week (16th to 21st). On Thursday and Friday last the shipyards, iron works and collieries shut down—some of them till Thursday of this week, but most of them till Monday, 27th inst. Several of the shipyards and coal pits will not restart for some days later, as, once having closed, employers usually prolong the holidays when they are short of orders. And most of the shipbuilders and coal owners are now short of orders.

Just before the holidays Scotch warrants were 52 shillings 3 pence; Cleveland, 46 shillings 6 pence, and Cumberland hematite, 56 shillings 7½ pence. The stocks in the Glasgow warrant yards were 13,836 tons, as against 47,715 tons at the corresponding date of last year. The stocks in the Cleveland warrant yards were 133,279 tons, as against 150,673 tons at the corresponding period. The stock of Cumberland hematite iron in the warrant yards is 20,843 tons. At the date of writing Scotch warrants are 52 shillings 3 pence; Cleveland, 46 shillings 9 pence, and Cumberland, 56 shillings 9 pence; but the market has hardly yet recovered normal conditions. And it is not encouraged by the advices from your side. The following are current makers' prices for pig iron:

	No. 1.	No. 3.
	s. d.	s. d.
G. M. B.....	55 6	51 0
Coltness, f.a.s. Glasgow.....	72 6	59 0
Langloan, f.a.s. Glasgow.....	70 6	59 6
Summerlee, f.a.s. Glasgow.....	68 0	58 6
Calder, f.a.s. Glasgow.....	62 6	.. ..
Gartsherrie, f.a.s. Glasgow.....	63 0	56 6
Shotts, f.a.s. Glasgow.....	66 6	58 6
Clyde, f.a.s. Glasgow.....	62 6	56 0
Carnbroe, f.a.s. Glasgow.....	56 6	.. ..
Glenarnock, f.a.s. Ardrossan.....	61 6	55 0
Eglington, f.a.s. Ardrossan.....	56 6	53 6
Dalmellington, f.a.s. Ayr.....	56 0	53 0
Middlesbrough G. M. B., f.o.b. tees.....	48 6	46 7½
W. C. hematite m/nos., 58 shillings, f.o.b. Cumberland or Barrow.		
W. C. hematite, m/nos., 57 shillings per ton, f.o.b. Tees.		
Scotch hematite, m/nos., 61 shillings 6 pence, f.o.b. steel works.		

Exports and Imports.

Below I present a comparative summary of exports of iron and steel from the United Kingdom and imports thereto for the first half of the year:

	For six months.	
	1903.	1902.
	Gross tons.	Gross tons.
Pig iron.....	595,458	377,503
Rails.....	406,829	345,500
Manufactured (including scrap).....	1,016,698	842,361
Totals.....	2,018,985	1,565,391
Imports.		
Pig iron from United States.....	1,746	6,736
Pig iron from Sweden.....	20,435	25,267
Pig iron from other countries.....	47,477	85,881
Bars, angles, &c., all countries.....	188,899	72,864
Unwrought steel.....	92,956	134,350
Girders, beams, &c.....	66,879	61,507
Fires and axles.....	2,795	1,013
Enumerated articles.....	170,807	164,681
Totals.....	591,994	552,299
Imports of iron ore:		
From Spain.....	2,594,528	2,547,525
From other countries.....	682,160	508,992
Totals.....	3,276,688	3,056,517

The total shipments to the United States in the past half year were 315,625 tons, as compared with 151,508 tons in the first half of 1902 and with 56,343 tons in the first half of 1901.

Review of Trade Conditions.

At this middle period in the calendar year it is usual to sum up the past half and to forecast the coming half of the commercial year. As to the past six months business has not been bad on the whole, though it has not

been equally distributed. Smelters have been well employed, but all iron and steel manufacturers have not been. Some concerns make very good reports.

Early in the year the Glasgow Iron Company closed their large malleable iron plant, throwing many hundreds of men idle, and a few months later disposed of it for scrapping to P. & W. McLellan, Glasgow. One of the mills was purchased by a new company, who are at present erecting a new work for the manufacture of hoop iron. Following upon the stoppage of the Glasgow Iron Company's works, the stoppage of the Mossend Steel Works took place, with the consequent displacement of many more men, but the bulk of them have found employment elsewhere. In the steel industry there has been quite a fair run of work, although there has been a marked falling off of American orders. Prices are not considered satisfactory by manufacturers, who maintain that they are much out of proportion to the price of raw material. A large amount of electrical machinery has been introduced, displacing manual labor and introducing a rearrangement of wages. These alterations in wages have been brought about in an amicable manner.

As to the future, some makers are hopeful, others despondent—especially those who supply shipbuilding material. There is no probability of improvement in shipbuilding before the fall, if then, and that means a great deal to a number of our local iron and steel producers. *Per contra*, the demands in connection with electrical engineering, tramway systems and motor cars seem to be increasing month by month. These new developments are creating a difficulty in the labor question. Marine engineers naturally want to get wages down so as to reduce costs and encourage employment in the shipbuilding industry. As it is, they are having to pay off a number of men. But these men—or at all events, the best of them—are readily taken up by the electric and motor car makers, so that the number of unemployed on the trade union lists is being reduced. There is thus little hope of wages being got down in the marine engine shops. In fact, at the adjourned conference between the local Associations of Engineering Employers and the A. S. E., which is to be held at the beginning of August, it is tolerably certain that the A. S. E. will apply for a restoration of the 5 per cent. recently taken off. This will be awkward for the marine engineers, who, whatever their own condition, cannot disprove the demand for labor in other branches of engineering. And again, while among the shipyard workers there is considerable reduction of employment, there is also a good demand for boiler makers and smiths for the new engineering works. That of course does not help riveters and shipwrights, whose sole occupation is in the construction of the hulls of ships, but it reduces the pressure of unemployed on their respective trade unions and increases the difficulty of the shipbuilders in adjusting the labor problem. I fear there is trouble ahead in this connection.

The Locomotive Combine.

The locomotive combine here, which practically includes all the locomotive builders of Scotland (except the railway companies, who build for their own uses only) and 60 per cent. of the output of the United Kingdom, are very busy just now with both home and foreign contracts. This week Dubs & Co. are making a large shipment of engines to Alexandria for the Egyptian railways, and Neilson, Reid & Co. are shipping a heavy consignment to Natal, South Africa. Great regret has been caused within the last few days, in the trade and in the city, by the death of Charles Ralph Dubs, head of the firm of Dubs & Co., and one of the chief directors of the combine.

Shipbuilding News.

Some extraordinary speed results have been obtained by the first-class armored cruiser "Donegal," built by the Fairfield Shipbuilding & Engineering Company, Limited, for the British Admiralty, on the trials stipulated in the contract. It has been hitherto the custom for contract builders to carry out the speed trials of warships, and afterwards the guns and mountings were put on board at one of the Government dockyards; but the

Admiralty now order the vessels to be completed by the contractor. The "Donegal" is the first cruiser to go out from a contractor's works fully equipped with guns, torpedoes, &c.

The series of trials laid down by the Admiralty for the "Donegal" included steam trials at various powers, gun and torpedo trials, circle turning, steering engine and anchor trials, all carried out with very satisfactory results. A trial which has given some difficulty in other vessels of the class was that of bringing the rudder back from the hard-over position to the middle line when steaming at 17 knots astern. Other ships have to slow down the propelling engines by 10 or 12 revolutions to accomplish this, but in the "Donegal" this severe test of the steering machinery was carried out without difficulty at a speed corresponding to 104 revolutions astern. During the voyage to Devonport the steam trial of 30 hours at one-fifth power was completed. The average speed at this low proportion of the power of the vessel was 14.75 knots.

The ship was afterward prepared for the return voyage to the Clyde, during which the 30 hours' trial at three-fourths power was carried out. The mean speed during this trial was 22.3 knots, which exceeds anything hitherto done on a similar trial of any cruiser. An early start was made on the full power trial of eight hours' duration, and on the measured mile at Skelmorlie, while running at the contract horse-power—22,000—the mean speed of four runs was 23.73 knots, being the greatest speed yet attained by any vessel of the class; and, proceeding out to sea for the stipulated eight hours' trial, the indicated horse-power developed was 22,154.

All the shipbuilders have not had bad times during the past year, notwithstanding the general complaints. Among those who have done well have been those well-known shipbuilders, David & William Henderson & Co., Limited, Glasgow. Their report states that the results of the year ended April 30 last have been satisfactory. The profit, after charging the cost of renewals and upkeep, amounts to £46,058 5s. 3d., to which falls to be added a balance brought forward from last account, £14,616 19s. 6d., giving £60,675 4s. 9d., which the directors propose to appropriate as follows: Depreciation of $2\frac{1}{2}$ per cent. on buildings and 5 per cent. on machinery, £5611; interim dividend on preference shares, £7500; final dividend on preference shares, £7500; dividend of 10 per cent. per annum on the ordinary shares, £22,500; leaving to be carried forward to next year, £17,564 4s. 9d. Notwithstanding the general depression in shipbuilding, the business of the company has not yet been materially affected. A complete installation of power gas producing plant has been introduced at the engineering works for driving machinery and heating plate furnace, &c., which is giving economical results.

B. T.

The Outlook for Drawback Legislation.

WASHINGTON, D. C., August 4, 1903.—The announcement that the President will summon an extra session of Congress on November 9, taken in connection with the evident intention of the House and the Senate leaders to prevent any kind of tariff legislation prior to the next Presidential election, has served to give a very decided impetus to the movement having for its object the liberalizing of the drawback laws, and the friends of the Lovering bill are preparing to take vigorous measures to secure a favorable report from the Committee on Ways and Means early in the coming session. General Lovering, the author of the bill, is already making an active campaign in the interest of his measure, and is much gratified at the favorable attention he has succeeded in attracting to it at several national conventions of industrial associations held within the past few weeks.

The Lovering bill is very favorably circumstanced to secure early action in the next Congress. While chief attention at the special session will be given to the Cuban reciprocity treaty, which will be taken up before the organization of the House is perfected, nevertheless the appointment of the Ways and Means Committee is a

condition precedent to the reporting of a resolution putting the treaty into force, and as the Lovering bill, when reintroduced at the special session, will be referred immediately to this committee, it will be in order for any friend of the measure on the committee to call it up for action as soon as the Cuban resolution has been sent to the House. It is anticipated that the Ways and Means Committee will desire to investigate the drawback question at some length before acting upon the Lovering bill, and an excellent opportunity will be afforded for such an inquiry while the House and Senate are engaged in a more or less perfunctory debate upon the reciprocity question.

The Plan of Campaign.

General Lovering's plan of campaign is a simple one. He proposes to emphasize in all quarters what he regards as the singularly apt declaration made by the late President McKinley, when the bill of which he was the author was pending in the House, that "the drawback system is the safety valve of the protective tariff." The Lovering bill is claimed to be neither more nor less than a measure designed to carry out the principle upon which the drawback section of the McKinley law was based, and it is the conviction of General Lovering and those who favor his measure that the pressure for the modification of the Dingley tariff is now so great that the drawback safety valve will have to be opened a little wider to avoid disaster. The drawback bill will be urged, not as a measure hostile to the present tariff, but as one that will afford such a measure of relief to the manufacturing trades that the public will be reconciled to the retention of the Dingley law without change for another year or two.

Inasmuch as the Lovering bill died with the last Congress like all other measures which did not become laws, it will be necessary to reintroduce it at the coming session. Notwithstanding this opportunity to revise the bill, however, it is understood it will again be presented without any material changes, the draft as laid before the Ways and Means Committee at the last session having been very generally approved by the various industries interested in liberalizing the drawback laws. In this respect the friends of the bill in Congress have shown much loyalty to those industries interested solely in certain sections of the bill to which objections were raised by the members of the Ways and Means Committee, and have declined to accept a favorable report upon parts of the measure. There is no doubt that if the author of the bill had been willing to sacrifice the first section of the bill, which under certain circumstances permits the substitution of domestic for imported materials where an equal quantity of foreign materials of like quality has been purchased by the manufacturer, and the section providing for the payment of the same drawbacks on goods manufactured from lead smelted in bond as are allowed the smelters who export such lead direct, the Ways and Means Committee would have reported the bill favorably at the last session. The advocates of the measure regard the substitution section, however, as one of its most important features, and are unwilling to make any concessions that would result in its elimination.

The officials of the Treasury Department express their willingness to co-operate with General Lovering in the effort to pass his bill or a similar measure at the coming session. They are entirely willing to accept the substitution section, but express some doubt as to the advisability of adopting the lead section in its present form. The Department's criticism of the lead section is that, inasmuch as the law now grants to the smelter a 10 per cent. margin for wastage, whether the lead which he smelts from foreign ore is wholly exported or in part withdrawn for domestic consumption, it would amount to a bounty to give the exporter of products manufactured from lead so withdrawn the full duty paid by the smelter on the ores from which the lead in question was produced. The Department thinks some plan should be devised by which the smelter will be required to share with the exporting manufacturer the wastage allowance now made, which allowance, it is claimed by the Government experts, is materially in excess of the actual loss in smelting and refining.

W. L. C.

Vessels Launched on the Delaware.

A trio of vessels were launched in the Delaware River at Philadelphia on July 25 by Philadelphia and adjacent builders. The Wm. Cramp & Sons Ship & Engine Building Company launched the "Medjidie," a war ship, building for the Ottoman Empire. This vessel has a water line length of 330 feet; extreme beam, 42 feet; mean draft, 16 feet, and a displacement of about 3250 tons. Her engines will develop 12,000 horse-power, and her speed is to be 22 knots per hour. The armament for the "Medjidie" is being completed by the Bethlehem Steel Company, and will be placed in position in a few months. The vessel's battery will consist of two 6-inch guns, mounted fore and aft; eight 7-inch guns, mounted broadside and six 3-pound and six 1-pound rapid fire guns. In addition there will be a protective turtleback deck and an armored conning tower. The engines and ventilating appliances will be up to the highest standard.

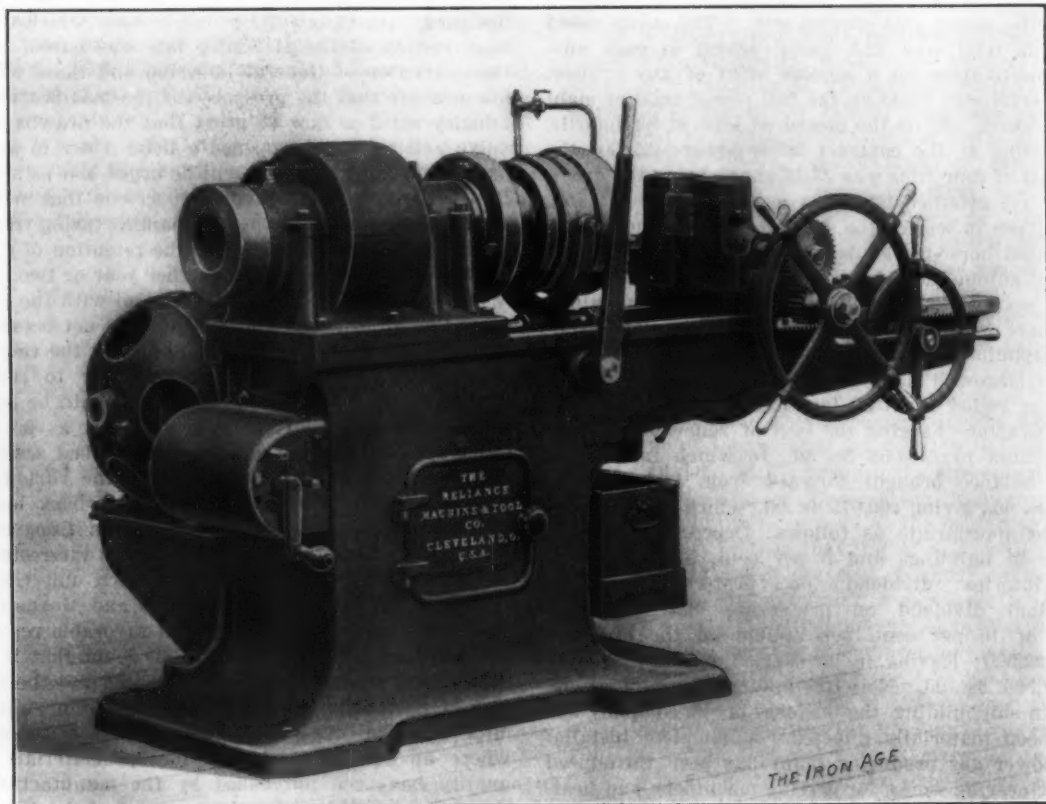
The New York Ship Building Company, at Camden,

are of the quadruple expansion twin screw type, designed for 80 revolutions per minute. The vessel is lighted throughout with electricity, and great care has been taken to insure perfect ventilation throughout the ship, more especially in passengers' quarters.

The Neafie & Levy Ship Building Company also launched on Saturday last the steel tug boat "Middlesex," building for the Central Railroad of New Jersey. This vessel is 109 feet long and 24½ feet beam, and is intended for towing on Long Island Sound. She is of steel throughout and will be equipped with triple expansion engines, steam steering gear, capstans and an electric light plant.

The Reliance Electrically Driven Bolt Cutter.

A bolt cutter which is a decided departure from what has heretofore been the standard type of machine has been brought out by the Reliance Machine & Tool Company of Cleveland, Ohio. The 3-inch cutter here illus-



Front View.

THE RELIANCE ELECTRICALLY DRIVEN BOLT CUTTER.

N. J., launched on the same date the hull of the steamer "Mongolia," building for the Pacific Mail Steamship Company and destined for traffic between San Francisco, the Hawaiian Islands, China and Japan. This vessel will be the largest ever built on the Delaware River, and the second largest built in this country. The dimensions of the "Mongolia" are 615 feet length over all, 65 feet beam, 51 feet depth of hold, with a displacement of 26,500 tons, and a dead weight carrying capacity of 14,000 tons. Her horse-power will be about 12,000, and the average speed will be about 16 knots. As regards type, she follows the now accepted standard for this class of work, being a five-deck vessel, with a complete shelter deck and a large bridge house amidship on this deck. She is being built under the special survey of, and to take the highest classification in the American Record and Lloyd's Register. She will accommodate about 350 first-class passengers, 68 second-class passengers and 1300 steerage passengers. The vessel's boilers are of the Scotch type, four double and four single ended, fitted up with the Morrison corrugated furnaces. They are designed for 215 pounds working pressure and to use heated forced draft. The engines

trated is equipped with a Crocker-Wheeler motor and controller. A new feature is found in the method of driving the spindle, the driving gear being located centrally between the bearings of the spindle instead of being at the extreme end thereof. A system of compound gearing makes it possible to obtain greater power without having an unduly large driving gear. This method of driving the spindle eliminates all tension and produces a smoother and more rapid cut without chatter. The oil and chips which work through the hollow spindle are no longer a source of trouble by falling upon the belt and pulley. The working parts are all easily accessible and the floor space has been reduced by the compact design of the machine. In the belt driven machines a four-step cone pulley replaces the gear meshing with the motor pinion.

Jones & Laughlin Improvements.—The Jones & Laughlin Steel Company have broken ground for the building of 500 beehive coke ovens adjoining their Eliza blast furnaces in Pittsburgh. These new ovens will give this company a total of 1900 coke ovens, the entire output of

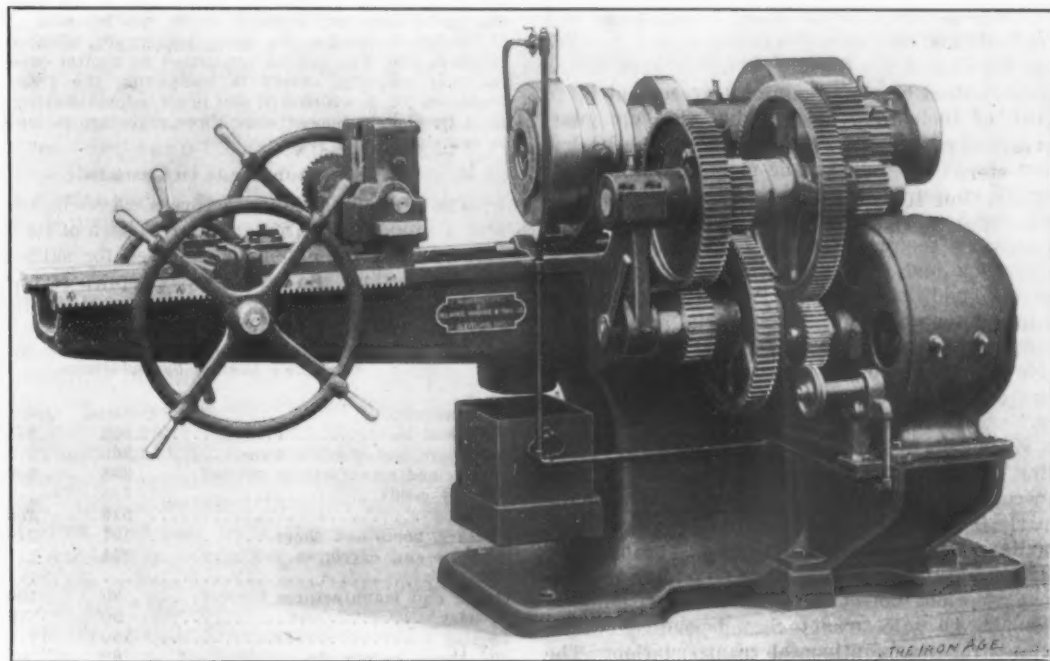
which will be used in the Eliza and Soho furnaces. About September 1 the same company will install a large new billet mill in their American Iron & Steel Works, on the South Side, Pittsburgh. The greater part of this mill has been built by the company in their own foundry and machine shops, but certain parts of it will be furnished by the Morgan Construction Company, Worcester, Mass. As soon as this billet mill has been installed the Jones & Laughlin Steel Company will hook on it an auxiliary mill for the rolling of sheet bars. They expect to be in the market with sheet bars early next year.

The National Steel Foundry Company.

The National Steel & Wire Company of New Haven, Conn., have taken to associate with them as a subsidiary company the National Steel Foundry Company, recently organized by prominent local interests in New Haven. The National Steel Foundry Company have purchased a part of the 50-acre site owned by the National Wire Corporation (also a subsidiary company of the National Steel & Wire Company), that location having both rail-

is \$300,000, and the plant, which is being erected at the present time, is to be thoroughly equipped to turn out 35 tons of finished product per day. The main building, which will contain the molding and casting departments, is 408 feet long by 160 feet wide, and will contain two 25-ton acid open hearth furnaces of 25 tons capacity each, and one 40 and three 30-ton traveling cranes. Aside from this the necessary pattern storage, power house and gas producers will be erected immediately. All the buildings are so arranged as to permit of extensions from time to time as an increased business may require, without the slightest interruption to operations or altering of the general plan. Every effort is being made to pour the first heat by January 1, 1904, and it is confidently expected by the management that this can be effected.

The directorate consists of Henry L. Hotchkiss, president of L. Candee & Co., of the Union Trust Company, of the Shoe Hardware Company and of the New Haven Web Company; Frank L. Brown, vice-president and treasurer of the National Steel & Wire Company; H. Sanborn Smith, vice-president and secretary of the National Steel & Wire Company; Frederick B. Farnsworth,



Rear View.

THE RELIANCE ELECTRICALLY DRIVEN BOLT CUTTER.

road connections and dockage capable of accommodating ocean going steamers of large tonnage. The Foundry Company will be able to remelt in their open hearth furnaces all of the waste from the wire and rod mills of the National Wire Corporation, and thus much of the scrap necessary to make steel castings will be provided for and freightage thereon saved.

The National Steel Foundry Company were originally organized to supply the trade of New England and New York, throughout which section, in common with the rest of the United States, there has been and still is a scarcity of steel castings. This union of interests, however, immediately opens a broad field, as the National Steel & Wire Company maintain selling departments in Chicago, Kansas City, San Francisco and De Kalb, Ill., as well as in Boston, New York and New Haven.

New Haven affords an admirable location for a plant of this character. Situated as it is on tidewater and in the heart of a thriving and progressive manufacturing section, a ready market can always be found for the finished products of both companies, and at the same time raw materials can be laid down on the docks at minimum cost.

The capital of the National Steel Foundry Company

president of the McLagon Foundry Company and treasurer of the Eastern Machinery Company; H. Stuart Hotchkiss, vice-president and secretary of L. Candee & Co.; Eugene Buckman and M. Sims of New Haven. The officers are Henry I. Hotchkiss, president; Frederick B. Farnsworth, vice-president; H. Stuart Hotchkiss, treasurer; Eugene Buckman, secretary; M. Sims, manager.

New Steel Plant at Paden City, W. Va.—The Ohio Valley Steel Foundry Company, Empire Building, Pittsburgh, Pa., have recently been organized, and will build a plant at Paden City, W. Va., for the manufacture of steel castings, sheet bars, merchant bars and sheets. The plant will consist of five 25-ton open hearth furnaces, one 24-inch bar mill and other necessary equipment complete to operate the plant, all of which has been contracted for with the exception of one 750 horse-power engine. The capacity of the plant will be about 2000 tons of bars per month and about 750 tons of steel castings. The company expect to have two of the open hearth furnaces in operation by November 1, and the whole plant in operation early next year. C. G. Grobinson is president.

Canadian Notes.

Grand Trunk Pacific Agreement.

TORONTO, August 1, 1903.—On Thursday afternoon Sir Wilfrid Laurier laid before the House of Commons the agreement between his Government and the Grand Trunk Pacific Railway Company. Its features were correctly outlined some time ago by the chief Ministerial organ and summarized in *The Iron Age*. Briefly, the new transcontinental railway is to run from Moncton, N. B., where it joins the Intercolonial system, to Port Simpson, B. C., a distance of about 3300 miles. The section from Moncton to Winnipeg is to be built by the Government and leased to the company for 50 years. For the first seven years the company are to pay only the working expenses, which include cost of road maintenance. For the remaining 43 years the company must, in addition to maintaining the road, pay the Government a rental of 3 per cent. on the cost of construction. Should the company be made to pay the rental during the first three years of this 43-year period, the deficit is to be charged by the Government to the cost of construction, and on the total thus enhanced the yearly 3 per cent. rental would have to be paid. The second section of the road, that from Winnipeg to the coast, the company will themselves build and own as well as operate, but they are to have the backing of the country. That is, their bonds are to be guaranteed by the Dominion Government up to 75 per cent. of their total amount, but the sum guaranteed is not to exceed \$13,000 per mile on the prairie section, nor \$30,000 per mile on the mountain section.

Section 37 of the agreement provides that the company shall purchase from Canadian producers all material and supplies required for the construction of the Western division and for the equipment of the whole line. But the condition is added, "when the same are produced in Canada and when such material and supplies can be purchased in desired quantities and of equal quality suitable for the purpose required, and for prices and upon terms equally advantageous with those procurable elsewhere."

In his speech Sir Wilfrid stated that the main reason for building the road was the desire to have an all Canadian transcontinental line. He recalled that from the first his party in the House had objected to any section of the Canadian Pacific Railway passing through the United States, and the opinion that the short line through Maine was a serious defect from the national point of view. Canada, he said, was to-day dependent on the United States for transcontinental transportation. The substance of the portion of his speech dealing with that matter is as follows:

"True, we were enabled to use American ports by the concession of bonding privileges; but this bonding privilege had always been held over our heads as a sword, and had been used again and again as a threat to obtain from us concessions that we would not otherwise have given.

"Up to this moment we had escaped the danger with which on a recent occasion we had been threatened, but what would happen if there should be a frenzy among the nations, and the American nation was affected thereby, so they would debar Canada from the bonding privilege?"

Canada's relations with the United States were friendly, and he trusted they would ever continue so. He had great admiration for the American people, but he had found that the best and most effective way to maintain friendship with our neighbors was to be absolutely independent of them.

Canadian Westinghouse Company.

Letters patent have been issued by the Secretary of State for Canada incorporating the Canadian Westinghouse Company, Limited, with a capital of \$2,500,000. The incorporators are George Westinghouse, Pittsburgh, Pa.; Henry H. Westinghouse, New York; Geo. C. Smith, Pittsburgh; Frank H. Taylor, Pittsburgh; L. A. Osborne, Pittsburgh; Thomas Ahearn and Warren Y. Soper, Ottawa; Paul J. Myles, Hamilton, Ont. The company are empowered to manufacture and deal in all kinds of machinery, engines, lamps, wires, motors, air brakes, &c.

The company have full authority to enter into contracts for constructing and equipping electrical and other works by whatever power to be operated. They are also enabled to acquire and develop mineral properties. Hamilton, Ont., is to have the head office.

Steel and Coal Companies Separate

After a series of meetings continued at Montreal during the greater part of the week, the directors of the Dominion Iron & Steel Company and of the Dominion Coal Company decided that the lease of the coal company's property held by the iron and steel company should be canceled. The following official announcement was given out on Friday evening:

The boards of directors of the Dominion Iron & Steel Company and Dominion Coal Company have agreed on the terms on which the lease between the two companies shall be canceled, and are calling meetings of their respective shareholders to authorize an agreement carrying out the same. The particulars will be communicated to the shareholders by circular immediately.

A leading director of both companies said in an interview:

The separation of the two companies will be beneficial to both. The chief reason for the steel company giving up the lease is one of finance. It needs capital to complete its finishing mills, which it could not obtain, and at the same time find the capital necessary to carry on the coal business. It has over \$2,000,000 invested in the latter department, which will now be released, and was besides committed to capital expenditure on the coal property, chiefly in completing the great works at Dominion No. 2, which will cost in all, approximately, \$2,000,000 from its commencement some three years ago to its completion at the end of this year.

Labor Needs in Canada.

The Canadian Manufacturers' Association recently sent a confidential circular letter to each of its 1200 members to learn the extent of the need for skilled labor in the association. So far only 344 replies to the 1200 letters have been received. They show the following unsatisfied demand for hands:

Mechanics Desired by Industries.

Industry.	Ontario.	Quebec.	Nova Scotia.
Iron and steel.....	2,932	314	66
Furniture and wooden ware.....	1,369	...	200
Cotton and manufactures thereof.....	898	500	12
Canned goods.....	745	...	60
Woolens.....	516	156	60
Leather, boots and shoes.....	197	240	20
Wagons and carriages.....	274	...	...
Coal.....	...	...	200
Paper and manufactures thereof.....	85	100	2
Jewelry.....	90	70	...
Cement.....	130	...	...
Chemicals, paints, &c.....	62	...	55
Printers and lithographers.....	103	5	6
Hats, caps and furs.....	30	75	...
Vinegar.....	...	100	...
Biscuits.....	89	...	...
Musical instruments.....	77	...	...
Cordage.....	45	25	...
Spice.....	...	50	...
Tobaccos and cigars.....	25	15	...
Flour, meal, &c.....	12	...	...
Miscellaneous industries.....	647	80	...
Totals.....	8,326	1,730	681
Grand total, 11,104.			

Efforts are being made to get hands in the United Kingdom, and they are being resisted by the Canadian unions. Neither the Dominion nor any Provincial government in Canada will admit that it is encouraging the immigration of skilled labor.

Minor Notes.

The Maritime Hardware Association held its annual meeting at Yarmouth, N. S., on July 9. For a number of years the association met at Digby.

The Smith's Falls Malleable Castings Company, Limited, have been incorporated, with a capital of \$150,000, to take over the business of the Smith's Falls Malleable Iron Works. W. H. Frost, J. E. Frost and Laura A. Frost are the provisional directors.

William Clark and John Moore recently celebrated their jubilee as employees in the Warden-King Foundry, Montreal. They were 50 years in the continuous service of the firm, and to mark the anniversary of the day they began as apprentices some 50 of their fellow employees made a presentation to them, after which Mr. Carson

and Mr. Moore left for their holidays, at Trembling Mountain.

The Board of Trade at Port Colborne, Ont., has received a communication from an American company, inquiring for a location on which to establish a radiator foundry.

Professor Coleman is making an examination of the Hutton iron range, north of Sudbury, for the Ontario Government.

The Canadian Copper Company, who are now a constituent of the International Nickel Company, are reconstructing their works at Copper Cliff at great expense.

The Ontario Tack Company's factory in Hamilton was destroyed by fire on Friday; loss, from \$40,000 to \$45,000.

C. A. C. J.

Our Shipping and Shipbuilding.

Very little of an encouraging nature concerning shipbuilding or the American merchant marine in the foreign trade of the United States is to be noted in this year's "Blue Book of American Shipping," which is just from the press. Rather, indeed, is foreign shipping still dwindling, since no new vessels have been ordered for this service. The "Blue Book," issued annually by the *Marine Review* of Cleveland, is a statistical publication and also a directory, well known in shipping and shipbuilding circles throughout the country. It contains as an introduction a careful review of conditions prevailing in these lines, from which the following is taken:

Except on the great lakes, where the industry is peculiarly a special one, protected by the coasting regulations, there is little encouraging to report regarding shipbuilding in the United States. During the fiscal year ended June 30 last 1536 vessels of 456,076 gross tons were built in the United States, compared with 1657 vessels of 473,981 gross tons for the previous fiscal year. Vessels now under construction indicate a further lessened output for the coming fiscal year. The principal decrease for the past year has been in steel steamers built on the great lakes, which number 41 of 131,660 tons, compared with 52 of 161,797 tons for the preceding year. The previous year was the one of greatest output in the lake district. On the seaboard 18 ocean steel steamers of 101,471 gross tons were built, the largest output of this type in our history. Only five of them can properly be credited to the oversea service—the "Finland" for the Red Star Line, the "Massachusetts," "Mississippi" and "Maine" for the Atlantic Transport Line, and the "Siberia" for the Pacific Mail Steamship Company. All these ships were ordered over two years ago, and there have been no new orders to fill the plans left vacant on the stocks.

A few contracts have been received by the coast shipyards for some splendid vessels for the coastwise service. These include a sidewheel passenger steamer and a freight steamer for the Fall River Line, the former to cost \$1,000,000 and the latter \$400,000, and both to be built by the Fore River Ship & Engine Company, Quincy, Mass.; a 400-foot passenger and freight steamer for the Mallory Line of New York, and a similar vessel for the Ocean Steamship Company of Savannah, both to be built at the Roach Ship Yard, Chester, Pa.; a 300-foot steamer for the Clyde Line, to be built by the Cramps of Philadelphia; a steamer for the Eastern Steamship Company, to be about 350 feet long; two steamers for the Ericsson Line, each 203 feet long, all to be built by the Harlan & Hollingsworth Company, Wilmington, Del., and four dredges for Government service, to be built by the Maryland Steel Company, Sparrow's Point, Md. These embrace all that are of any importance.

The past four years have marked a distinct revival in shipbuilding for the coastwise trade, but the crest appears to have been reached, for new orders are not forthcoming. The novelty of the coasting trade during the past year has been the construction of the seven-masted schooner, "Thomas W. Lawson."

Since the Spanish-American War naval contracts have been well distributed among the coast shipbuilders. During the year contracts for four battle ships, two armored cruisers and two gunboats have been given to them.

Contracts for two more battle ships are about to be given, and in addition the New York navy yard is building one battle ship. Forty-one warships are at present under construction, representing a displacement of 338,948 tons, a total horse-power of 415,500, and costing for hulls and machinery \$90,314,516.

A foreview of shipbuilding on the great lakes does not show many orders in abeyance. A year ago the shipyards were filled with orders for a full year ahead. But that is not the case now. The lake shipyards, broadly speaking, are now well up with their work. If they had to do so they could probably turn out all orders on hand within six months. Those best informed, however, do not take a dubious view of things on the great lakes. The industry, as stated before, is special. The ships are not like other ships; the shipping is not like other shipping; it is not made up of a multiplicity of things, as is ocean carriage, but is confined to a few items in bulk. These items are likely to continue to be moved for years in a constantly ascending scale, and ships will continue to be built to carry them. Moreover, a fair part of existing tonnage on the lakes is wooden. It is old and decaying and must go the way of all craft, and it must be replaced by new and more modern carriers. Thus, shipbuilding on the lakes for many years is assured, although the number of orders for the coming year will fall considerably below the business of any of the past three years.

Canadian Pig Iron Statistics.

The American Iron and Steel Association has received direct from the manufacturers the statistics of the production of pig iron in Canada in the first six months of 1903. The figures show a considerable decrease as compared with either of the two halves of 1902, as will be seen by the following table, which gives the production by fuels, in gross tons, in half yearly periods:

Fuel used.—Gross tons.	First half of 1902.	Second half of 1902.	First half of 1903.
Coke	147,892	154,820	123,500
Charcoal	9,912	6,933	9,430
Totals.....	157,804	161,753	132,930

The decrease in production in the first half of 1903 as compared with the first half of 1902 was 24,874 tons, or over 15 per cent., and as compared with the second half of 1902 it was 28,823 tons, or over 17 per cent. Of the total production in the first half of 1903, 69,325 tons were basic pig iron, against 57,209 tons in the first half of 1902 and 50,106 tons in the second half of that year. A small quantity of Bessemer pig iron was produced in the two halves of 1902, but no Bessemer pig iron was made in the first half of 1903.

The unsold pig iron held by Canadian manufacturers on June 30, 1903, none of which was intended for their own consumption, amounted to 13,585 gross tons, as compared with 20,041 tons on December 31, 1902, and 37,721 tons on June 30, 1902. Of the unsold stocks on June 30, 1903, about 200 tons were made with charcoal, the remainder being coke iron.

On June 30, 1903, Canada had 14 completed blast furnaces, of which nine were in blast and five were idle. Of this total nine were equipped to use coke for fuel, four to use charcoal, and one to use mixed charcoal and coke. In addition one charcoal and three coke furnaces were being built on June 30, 1903, and two coke furnaces were partly erected. Work upon the latter furnaces was suspended.

The National Automatic Weighing Company of Mount Kisco, Westchester County, N. Y., have been incorporated to carry on the business of the American Automatic Weighing Machine Company of London, England, and the National Automatic Weighing Machine Company of New York. The authorized capital stock is \$1,350,000. The directors: Robert S. Huz, Lyda H. Gardner, Adelbert W. Bailey, John Brandt and Charles R. Hutton of New York. The English company are capitalized at £270,000, of which half is preferred 6 per cent. cumulative stock, their shares being listed on the London

Stock Exchange. The plant is here, and the new organization will have the effect of transferring the dealings in the shares to this side of the Atlantic.

Lake Iron Ore Matters.

DULUTH, MINN., August 1, 1903.—Ore shipments from Minnesota for July were 2,474,487 gross tons, and for the first half of the season of navigation they amounted to 7,676,355 tons. These figures compare with previous years as follows:

	July. Gross tons.	First half of season. Gross tons.
1903.....	2,474,487	7,676,355
1902.....	2,388,973	7,222,263
1901.....	2,053,838	4,687,118
1900.....	1,610,472	4,831,966

Michigan and Wisconsin ports show a slight decline this month from last year, though the exact figures are not yet obtainable.

Baraboo Iron District.

Exploration on the new district near Baraboo, Wis., is increasing as fast as drills can be secured, and drilling firms here are constantly in receipt of inquiries for machines. The work there is conducted in a different manner from that on either the Mesaba or Vermillion ranges on account of the sandstone capping prevalent there. A machine something like the walking beam drill used commonly in oil and well drilling has been adopted for sinking through the sandstone, which frequently contains pockets of loose sand that would permanently clog the rods of either a diamond or common churn drill, such as is used in the lake region. This walking beam engine will sink a 7-inch hole very rapidly through sand and to ledge, but it is baffled by heavy surface. The hole is cased and a churn or diamond drill rod inserted for deeper sinking. One hole was sunk there last month that cut 662 feet in 25 working days, of which 225 feet were surface, 280 feet rock and the balance more or less clean ore. Drilling is inexpensive, but a good deal of it is required. Ore has now been traced for a length of more than 9 miles, and the formation is very apparent for more than 15 miles. New people are going in there quite rapidly, and there is every reason to expect that the district will show up a large tonnage. Men who have had the most experience with the new district claim there may be up to 100,000,000 tons found there in a comparatively short time. Eight drills are working in this district for the Deering Harvester Company. Others are for the Chicago, Milwaukee & St. Paul road and for Chicago, Duluth and Milwaukee capital.

Menominee Range.

The Oliver Iron Mining Company have decided to practically suspend drill explorations on the Menominee range, and consequently all drills have been stopped except one working to extend the Dober ore body for immediate mining. Some of the explorations were supposed to be in good ground and making excellent showings.

Iron County, Menominee range, claims four new good mines as the net result of explorations carried on there during the past few years, or since explorations in that region again grew active. These four are Baltic and Caspian of the Buffalo Steel Company, Tobin of Corrigan, McKinney & Co., and what is locally termed lot 3 of the International Harvester Company. Baltic and Caspian and the Genesee portion of Tobin are absolutely new finds; lot 3 and original Tobin had been promising explorations years ago. Baltic and Tobin are shippers to a considerable extent, and the others could send out some ore this year if necessary. The two Buffalo properties are at Stambaugh, the others near Crystal Falls.

Old Breen mine, at Waucedah, which has been idle since 1880, is to be unwatered and reopened for exploration. It produced a siliceous ore, and is supposed still to contain considerable deposits. Emmet, an adjoining and also idle property, belongs to the Steel Corporation.

Mesaba Range.

At Fayal, Mesaba range, a fourth shaft is being sunk, which will soon drift into ore, of which there are many

million tons adjacent to the shaft. This is the only shaft on the property in rock, and others may gradually be abandoned. Besides the daily output from three shafts two shovels are loading in the open pit and one at stock pile, while two more shovels are stripping in the pit. The mine will produce something like 1,500,000 tons this year, a considerable decrease from 1902, but more than made up by increases at other mines, such as Burt, &c

Miller mine, operated by the Pitt Iron Company, is rapidly approaching the shipping stage. This mine lies in section 4, T. 58, R. 15, and drilling adjoining to the west is showing a large extension of the ore body first found. The Miller shaft will probably reach and open the first level in time for small shipments this fall.

The milling of ore has commenced at a new and important Mesaba property, the Kinney, in section 14, T. 58, R. 19. The Great Northern road owns this in part, and leases the remainder. It was subleased, as a whole, to the Republic Iron & Steel Company two years ago, and has been under process of development for a year. A pit, 100 x 300 feet, has been stripped of overburden of a thickness of from 40 to 50 feet. A shaft has been sunk at one side, and drifts run under the ore. The past few weeks men have been opening raises under the stripped area to surface, and now they have commenced milling. A small stock pile accumulated from development, and this has been shipped. The mine will produce about 75,000 tons this year, but is capable of a very much greater shipment if desirable, and will probably be one of the large shippers another season. The stripping contract amounts to 2,000,000 yards, which will make a very much larger hole than is now open. Two shovels are engaged day and night in stripping, and during July moved 90,000 yards, with an average monthly product of about 5000 yards less. There is a good machinery outfit and permanent buildings are erected. The shaft is sunk 115 feet, and was much of its distance through quicksand. A year ago this mine was a wilderness of forest and swamp, untouched by axe or shovel; now it is a completely equipped and large producing mine.

Several drills are working in T. 56, R. 24, 10 miles east from the Mississippi River, and some ore is being found. Drills are also working near the village of Deerwood, on the line of the Northern Pacific road, a long distance from any outcropping of the ore bearing formation of the Mesaba range, and have cut some lean ore.

Marquette Range.

An interesting fact is the revival of the old Taylor property, near L'Anse, the most westerly property on the Marquette range, and abandoned for 35 years. It is stated that recent explorations underground are finding ore of good quality and in seeming abundance within 6 feet of the ends of drifts stopped when the mine went out of commission as an exhausted property. The old railroad leading to L'Anse was torn up and the ore dock destroyed some years ago.

Restoration of old Lucy mine is progressing satisfactorily in No. 3 shaft, and attention will soon be turned to No. 5, which is deeper than No. 3. There is a complete machinery outfit on the ground and 50 men are working.

At Moore mine, of the Steel Corporation, stripping is to be completed and arrangements made for shipments this fall, but no ore can be shipped until the great crushing plant at Escanaba is ready, and that will not be until the season of 1904. An area 500 x 1200 feet will be stripped of about 500,000 cubic yards. The thickness of covering is about 12 yards.

The Bradley-Watkins Company, tanners, of Sault Ste. Marie own a large limestone quarry near the Soo, and have closed with the Union Carbide Company for the stone the latter will need at their great works. The carbide buildings are 100 x 800 feet, four stories high, and half the power house of the Lake Superior Power Company giving 100 x 680 feet more. This is for machines. The company have contracted to take 10,000 horse-power from the Power Company, have an option on 10,000 more, and are installing dynamos to more than consume the original contract. It is expected that the works will be running in August.

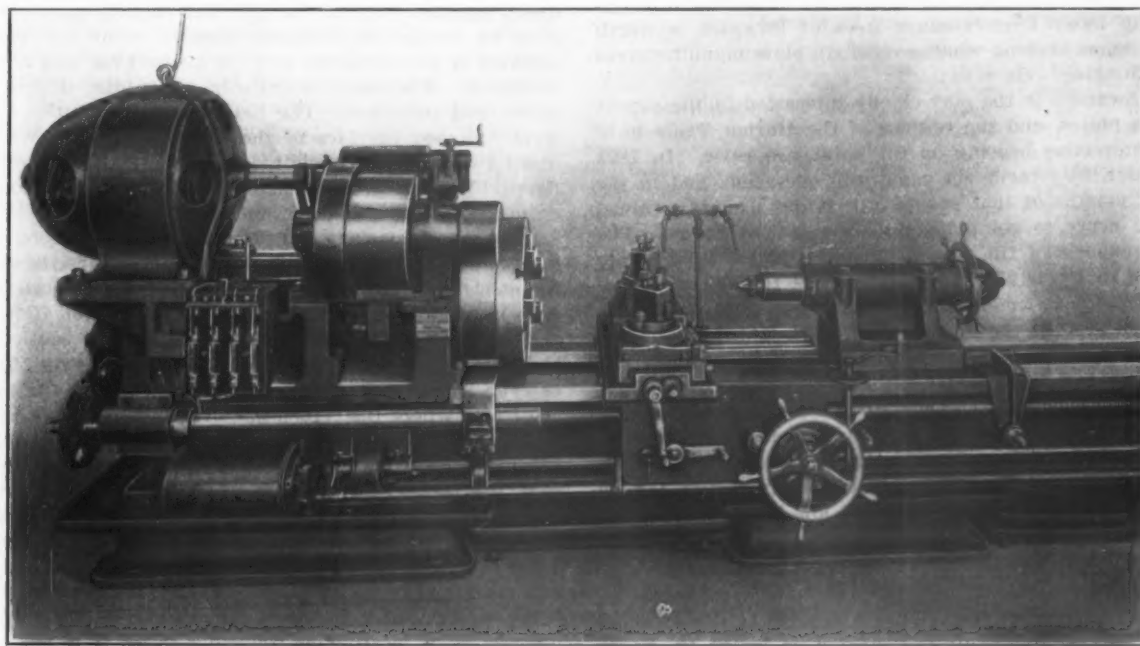
D. E. W.

A Motor Driven 26-inch Rapid Production Lathe.

The accompanying engraving illustrates the application of a motor drive to a rapid production lathe manufactured by the Bullard Machine Tool Company, Bridgeport, Conn. The machine has a 26-inch swing, a greatest distance between centers of 10 feet, and is equipped with two tool holders. As its name implies, it is designed especially for heavy work, and the handling of large roughing cuts made possible through the use of self hardening tool steel, and has a particularly neat arrangement for a contained drive. The motor, a Crocker-Wheeler 20 horse-power shunt wound machine, is mounted in the position usually occupied by the cone pulleys on belt driven lathes. The armature shaft is connected by a rigid coupling with a shaft carrying two pinions of different sizes, which by a lateral movement in one direction or the other are caused to engage, one at a time, with corresponding fixed gears on an intermediate shaft giving two speeds to the latter. At one end this intermediate shaft carries a spur gear, which drives the lathe spindle through a large gear behind the face plate. The spindle is exceptionally long, giving a good distance be-

able voltages and six intermediate speeds between these fundamentals by a small amount of field weakening. Mechanically, these 12 speeds may be doubled by the two gear changes in the drive, as already described, so that in all the tool has 24 possible speeds. The controller is mounted on the front of the lathe just below the lead screw, and is manipulated by a handle on the tool carriage through two spurs, a splined shaft and a pair of beveled gears, one of which is feathered so as to slide but not turn on the shaft. This affords the operator perfect and convenient control of the machine, to start, stop or run it in either direction at any of its various speeds without moving himself or even his eyes away from the work.

The New Cleveland Furnace.—The Cleveland Furnace Company of Cleveland, Ohio, expect, in the near future, to blow in their new blast furnace in that city. The company were organized several months ago by the Rogers-Brown interests, who have lately erected a number of blast furnaces in Ohio and other States. The Cleveland furnace will have a daily output of about 500 tons of pig iron, and they will also manufacture their own coke;



A MOTOR DRIVEN 26-INCH RAPID PRODUCTION LATHE.

tween the bearings, and consequently a much to be desired rigidity.

The travel of the carriage may be directed and controlled at will through the hand wheel shown on the front, or may be operated automatically, either on the gear driven lead screw for heavy roughing and thread cutting, or on the spindle shaft, which is belt driven from the pulley on the lathe spindle, when a more rapid travel is needed. The cross feed operates only by hand, but is arranged so that both tool rests may be simultaneously fed toward one another if two tools are being used. For moving the entire tail stock there is attached an elbow extension, which carries a pinion actuated by a crank key and intermeshes with the tool carriage feeding rack under the front ledge of the bed. While the machine is running a continuous stream of soapy water is maintained on the tool and worked by a small rotary pump belted by two reductions from the armature shaft, and arranged to draw the water from the catch basins beneath the lathe, as indicated.

In order to secure the most economical performance of the tool at all times it is arranged to drive at various speeds according to the nature and size of the piece of work being handled. For this purpose the motor is supplied with power from a four-wire system and equipped with a Crocker-Wheeler multivoltage speed controller, which gives six fundamental speeds by the directly avail-

able voltages and six intermediate speeds between these fundamentals by a small amount of field weakening. Mechanically, these 12 speeds may be doubled by the two gear changes in the drive, as already described, so that in all the tool has 24 possible speeds. The controller is mounted on the front of the lathe just below the lead screw, and is manipulated by a handle on the tool carriage through two spurs, a splined shaft and a pair of beveled gears, one of which is feathered so as to slide but not turn on the shaft. This affords the operator perfect and convenient control of the machine, to start, stop or run it in either direction at any of its various speeds without moving himself or even his eyes away from the work.

coke ovens having a capacity of 350 tons per day having been erected adjacent to the furnace. The plant is located about 4 miles up the Cuyahoga River at a point hitherto above navigation for ore carriers. It was found that every available inch of dock room along the lower reaches of the river and outer harbor had been taken, and that manufacturing concerns were clamoring for more water frontage. The city administration took the matter up and the river has since been dredged to a point beyond the furnace. The completion of the furnace will inaugurate a new era in the development of the upper flats, with the result that several capitalists have bought up all the available land in this district and offering it for manufacturing purposes. The deepening of the channel makes it available for shipping by boat, while the railroad facilities are all that could be asked, since it is on the Baltimore & Ohio, Wheeling & Lake Erie and the Belt Line, which connects with all the roads radiating from Cleveland. The Cleveland Furnace Company have recently negotiated a loan of \$250,000 for operating expenses. The new furnace was built at a cost of about \$1,000,000. D. T. Croxton is general manager and C. B. Smith, secretary and treasurer of the company.

Joseph E. Schwab, president of the American Steel Foundries Company, is in the West inspecting the different plants of the company.

Notes from Great Britain.

The Markets.

LONDON, July 25, 1903.—There is no buoyancy, but every one is waiting for the other man to begin. This week German steel sheet bars have been offered at £4 8s., which is 5s. below English prices. This, of course, is a serious disadvantage to English steel makers, for it holds them effectually in check, but the makers of black sheets for galvanizing have materially benefited. They themselves state that they would not be able to carry on unless they were thus able to buy cheap foreign steel. The difficulty at the moment is the irregularity of deliveries, which frequently throws the consumers back on the dearer English article. Rolling stock makers are taking a great lot of material just now, and it seems probable that they will be good customers for some time to come. There is also a slight improved demand for constructional steel, but the depression in the Lancashire cotton industry is still serious and disheartening.

Welsh Tin Plates and Protective Tariffs.

As showing how British business men are turning their attention to the effect which a protective or preferential tariff may have upon their own business, the following letter from Thomas Rees of Swansea is worth reading, as showing what several tin plate manufacturers are thinking. He says:

"Swansea is the port chiefly interested in the export of tin plates, and the returns of the Harbor Trust have an interesting bearing on the point you raise. In 1891 the McKinley tariff act came into operation, and in the early months of that year South Wales makers strained every nerve to get plates into the United States. The total exports of tin, tines and black plates from Swansea in 1891 was 233,020 tons. In 1901 the exports under the same head amounted to 239,489 tons, and the figures for last year fix the tonnage at 271,832. Our manufacturers have found new markets, and free trade alone has enabled them to do it. They sent £500,000 worth of plates to Russia last year. They could do this because shipowners, relying upon a profitable homeward cargo of wheat or oil, were willing to take a low outward freight. When Mr. Chamberlain has placed a prohibitive tax on Russian grain the advantage of low carriage must be denied us, and then the trade may be killed."

The Progress of the Tariff Agitation.

As I have already pointed out, it is not possible at present to indicate the relative strengths of the opposing armies in the fiscal agitation started by Joseph Chamberlain. But slowly the air is being cleared, and we can see to some extent what are the commercial forces on either side.

Against any change in our fiscal system may be included the majority of the shipowners. With the possible exception of two or three shipping lines who have close official connection on account of their trade with British colonies, the shipping trade thinks it will be hard hit. The most important representatives of the shipbuilding industry are also strong free traders.

Secondly, and even more importantly, the cotton industry is, in the main, dead set against any fiscal innovation. Whatever adds to the price of the finished article, whether it be wages or raw material or semiraw material, makes against the competitive efficiency of the cotton industry.

Thirdly, on the whole the merchants—that is, the wholesale buyers and sellers—are for free trade. They have not expressed themselves, for the simple reason that there is no machinery whereby this can be done, but there are many signs that merchants hold strong free trade opinions.

Fourthly, the organized trade unionists are to a man strong free traders, and they have already taken the field in strong opposition to any scheme of protection or preferential tariffs. Hitherto they have avoided politics and have confined themselves entirely to industrial warfare. The Taff Vale decision, which has struck at the fabric of their organization, has brought them into politics, and they are now engaged in building up a political party independent of the two orthodox political parties.

Fifthly, the Liberal party as such has pronounced itself strongly free trade. There have been wonderfully few secessions from the party in consequence. The Conservative party, upon the other hand, is split upon the question and there are signs that bad blood is breeding among them.

And now, what are the forces in favor of fiscal preference? In all probability a large proportion of small manufacturers, whose raw material is ready to their hand or can be drawn from the colonies, will support Mr. Chamberlain. The agricultural industry is obviously split upon the question. Breeders want cheap feeding stuffs, which they import in large quantities from abroad, and accordingly their disposition is to be for free trade. On the other hand, the growers of food stuffs would benefit, as would the landlords. Another class of supporter, upon which Mr. Chamberlain can rely, is the manufacturer who finds himself in sharp competition either with America or Germany, and who would not be seriously hard hit by any increase either in wages or raw material.

Unless I am mistaken, however, there is an economic movement not the less strong because unseen, which will tell strongly in favor of the Chamberlain scheme. It has direct relation to a fact as yet but vaguely appreciated even by recognized thinkers—namely, that the virgin markets of the world are now all mapped out and finally allocated. They are practically under the control of trusts and combines. The old merchant venturer, who went out over the face of the earth seeking for wealth and for territory to exploit, is now merely an historical figure. We now prospect new markets by commissioners engaged by large financial concerns.

The virgin markets are the unregulated markets, and it so happens that the unregulated markets are the most remunerative. The regularized trade of Northern Europe is considered to be doing uncommonly well if it returns a dividend upon investment of $7\frac{1}{2}$ per cent.; but there is many a virgin market which returns its 50, 60 or even 70 per cent., and in some cases, as, for example, the Rand, where the return has been hundreds and thousands per cent. But if these virgin markets are for the future to be exploited by organized finance, it follows that the smaller investor is crushed out of the virgin market, and he therefore has to find some other outlet for his capital. In all probability, next to the virgin markets of Africa, the most highly remunerative commercial investments for the capitalist are British Colonies. When we remember that both Australia and Canada are potentially of inestimable economic value, it is not surprising if the small capitalist will devote his activities to these markets. But if, in addition to the intrinsic value of the market, he can bring political influence to bear, and, by means of preferential tariffs as between Great Britain and the Colonies, more speedily develop a business connection than would otherwise be the case, he will naturally use his political influence to that end. It can be shown, beyond all cavil, that the bullion movement of recent years has been steadily toward London. The result is that we have amassed enormous wealth and also have a great reserve of surplus cash. A great number of the smaller capitalists, who can control in the main enormous capital sums, will be quick to perceive the commercial advantages from their own point of view of a protected colonial market.

Shipping Amalgamation.

An important Hull shipping combination has been announced this week. Thomas Wilson Sons & Co. (Limited), who own about 90 steamers, and are the largest private shipowners in the country, have amalgamated with Bailey & Leatham of Hull. Both businesses will be conducted in the same manner as before, at their respective offices. Bailey & Leatham own 23 steamers. The business will be worked as one. This has been the case for some years as far as trade between Hull and Hamburg is concerned, each firm advertising the other steamers. The normal value of Wilson's business, which a few years ago was converted into a limited company, is £2,000,000, but the shares were not placed upon the market.

The Siberian Iron Industry.

The following translated extract from the *International Handels Kurier* of Warsaw will be of interest to American readers particularly the latter portion, which specifically states that American capital is placing its ubiquitous foot in that portion of the globe:

Siberia must cover its requirements of iron to a vast extent by importation, in spite of its own wealth of mineral treasure of every kind, as it possesses only two iron works on a small scale. These are the Petrow Works, which supply the Nerczinsk Gold Mines exclusively, and the Abakau Works in the Minusinsk district, which produce only 200,000 roubles' worth annually. Siberia buys annually in the aggregate iron to the tune of about 2,000,000 poods. A syndicate has now been formed in order to set the Nikolajew Rolling Works at Irkutsk, which had been involved in the Mamontow bankruptcy, upon its legs again, with a view to rendering an annual production of 2,000,000 poods possible. The establishment of a similar undertaking on a large scale is projected for Western Siberia, with the support of the American millionaire, Mr. Astor. It is proposed to work the rich coal district of Kolczuga with the iron deposits of Telbes. This territory can easily be rendered accessible by a branch railway from the station Polomosznaja, which is situated near the railway bridge which crosses the Ob.

New British Battle Ships.

The Admiralty are hesitating about proceeding further with their plans for a new class of battle ship, designed by the new Chief Constructor, of 18,000 tons displacement. It is felt that warships with a beam of 80 feet and upwards will be difficult to dock in many ports throughout the British dominions, and it is now proposed to adhere to the size of the "King Edward VII" class, which have a displacement of 15,000 tons and a width of 78 feet 6 inches. Three of this type of ships are now building—the "King Edward VII," the "Dominion" and the "Commonwealth."

Wages in the Welsh Tin Plate Trade.

A crisis has arisen in connection with the negotiations between the masters and the representatives of the workmen in the Welsh tin plate trade, with a view to the renewal of the wages tariff agreement, which expired on June 30. Differences exist as to Canadas and doubles, the employers insisting upon payment by area. The workmen suggested that the matter be referred to arbitration, but the masters declined to agree to such a course, naming a further meeting a week hence. The parties separated without any definite understanding as to future action, and so the negotiations are practically broken off.

S. G. H.

Iron and Steel Imports and Exports.

The Bureau of Statistics of the Treasury Department has issued its monthly summary for June, from which we are enabled to obtain the statistics showing the imports and exports of iron and steel for that month and for the first six months of the current year. The imports for June show of course quite a heavy increase over the corresponding month of the previous year, the figures being, respectively, 150,746 and 98,559 gross tons. The total imports for the first six months of the present year aggregate 830,032 tons, against 313,351 tons for the first half of the year 1902. The imports for June were much larger than had been expected, running 40,926 tons larger than May, and only 10,316 tons less than April, when the high point was reached. The leading items are pig iron and steel billets. The receipts for June were of course due to arrivals on orders, some of which had been placed long previously. The demand for iron and steel for importation is now very light, and the statistics are hereafter expected to show a decided falling off. The total for the six months ending with June of this year is very heavy and the details are sufficiently interesting to be carefully studied. The shortage in the domestic supply of pig iron and steel billets is indicated by the very large figures attained by the imports of these commodities. The details are as follows:

Commodities.	June.		Six months.	
	1903.	1902.	1903.	1902.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig Iron.....	79,874	32,458	452,451	115,607
Scrap	17,634	12,760	62,337	35,946
Bar Iron.....	4,239	976	22,676	8,304

Rails	11,026	5,931	72,932	13,722
Hoop, band and scroll.....	150	1,541	458	2,668
Billets, slabs, bars, &c., steel in forms n.e.s.....	30,503	35,588	176,213	86,072
Sheets and plates.....	1,052	799	4,536	3,598
Tin plates and terne plates.	3,871	5,817	25,479	36,526
Wire rods.....	1,964	2,361	10,404	8,796
Wire and articles made from	384	295	2,282	1,918
Chains	30	24	210	147
Anvils	19	9	54	47
Totals.....	150,746	98,559	830,032	313,351

The exports of iron and steel in June were about 2000 tons larger than in May, but were considerably smaller than the exports for the corresponding month of the previous year, the figures being, respectively, 26,311 and 34,385 tons. It is unnecessary to comment on these figures as they indicate precisely the same condition of affairs as shown the previous months of the year. The exports for the first six months of 1903 amounted to only 149,495 tons, as compared with 218,173 tons in the corresponding period of 1902. Now that the production of iron and steel in this country has increased sufficiently to meet the domestic requirements, it is to be expected that increased attention will be given to the export trade. The detailed figures are as follows:

Commodities.	June.		Six months.	
	1903.	1902.	1903.	1902.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig Iron.....	1,653	2,085	7,517	16,746
Scrap	600	799	2,306	5,674
Bar Iron.....	2,580	5,623	12,105	16,238
Wire rods.....	3,171	1,487	14,373	7,098
Steel bars.....	659	569	9,568	5,276
Billets, ingots, blooms....	30	106	652	934
Hoop, band, scroll.....	143	176	1,136	1,140
Iron rails.....	.....	8	401	176
Steel rails.....	842	7,057	3,749	48,213
Iron sheets and plates....	226	270	1,248	1,783
Steel sheets and plates....	1,117	1,850	7,182	7,906
Tin plates and terne plates..	2	256	162	1,034
Structural iron and steel..	3,093	1,784	15,960	36,867
Wire	9,106	8,961	54,172	51,894
Cut nails.....	799	426	4,006	4,003
Wire nails.....	2,081	2,826	13,825	12,295
All other nails, including tacks	209	102	1,133	896
Totals.....	26,311	34,385	149,495	218,173

The imports of iron ore during the first six months of the present year aggregated 1,043,565 gross tons, against 1,189,732 tons for the corresponding period of the previous year. The exports of iron ore were only 77,220 tons in the first six months of 1903, against 68,265 tons in the corresponding period of 1902. The total importations of iron and steel, excluding ore, were valued at \$51,617,312 in the first half of 1903, against \$27,180,247 in the first half of 1902. The exports of iron and steel, excluding ore, but including builders' hardware, cutlery, machinery, sewing machines, &c., amounted to \$96,642,467 in the first half of 1903, against \$98,552,562 in the corresponding period of 1902. Builders' hardware, saws and tools increased from \$9,844,102 in the first half of 1902 to \$12,064,824 in the corresponding period of this year. Electrical machinery showed a slight increase, the figures being, respectively, \$5,379,746 and \$5,779,459. Pumps and pumping machinery also made a gain, the figures being, respectively, \$2,159,990 and \$2,715,553. Sewing machines showed a handsome gain, the figures being, respectively, \$4,022,697 and \$5,105,852. Locomotives barely held their own. Typewriting machines showed quite a gain, the figures being, respectively, \$3,302,192 and \$3,966,741. Pipes and fittings also made a gain, the figures being, respectively, \$5,153,080 and \$5,431,459.

The Cave of the Winds has been discovered at last in Point Reyes, Cal., this being, according to the records of the Government Weather Bureau, the windiest spot in this part of the world. For three days it blew at the rate of 102 miles an hour and for a short period at 120 miles an hour; this last effort disabled the anemometer by ripping all the cups off of it. The weather tower is a fortress, and pedestrians who have business in that vicinity have to keep under the lee of the cliffs to avoid being blown off the earth.

Present Conditions in the Anthracite Coal Regions.

During a recent trip in the anthracite coal regions the afternoon found the miners' cottages as silent as a Brooklyn side street on any workday afternoon, save that here and there there was a jaded miner returning from his work, with dirty smoked cap on head, his whole appearance being that of the "great unwashed." Although there are washing facilities at the mines, the men prefer to postpone their ablutions until they reach home. The foreign element predominates, and I am informed upon good authority that they have here housing accommodations immensely superior to those in Europe.

Life among the miners does not strike one as being a life of progress. We find them fairly intelligent, but with no hurrying desire to improve their lot. There are plenty of well frequented saloons in Scranton, for instance; but the very select public library, open till 9 p.m. to all, has a scant attendance. The homes of the miners' men—that is, the men employed and paid by the miner out of his own pocket—are very poor. Many of them have a woebegone appearance, consisting of only two or three rooms and kitchen, with a bit of garden, often neglected. The wooden coal bin is unpicturesquely placed right in front of the shanty-like house. This is done for convenience sake, because the coal is brought along the dirt road, and there is no cellar. Miners and workers alike buy their house coal, a ton at a time, direct from the employing company. That is socialism, pure and simple, in one form, and it is all of sociology they have at present. If they get an eight-hour day in the days to come that will be another move in the same direction. At present, indeed, the nine-hour day is only nominal, since the numerous holidays more than clip off that one odd hour in the aggregate. Strike or no strike, many miners borrow money on their homes, just to "keep up a little style," and thus have the curse of their debt hovering over their modest homes, with legal interest to pay. One of them said that he was "obliged to make a little appearance" and entertain visitors, or "what would they think of me?"

The piping times of peace and plenty are observable all over the coal regions. In the towns, big and small, there are no idlers loitering about—everybody appears to have something to do about the mines. The late strike stockade is still up, and is to be allowed to remain. It is surmounted by a double line of barbed wire. This is a country of barbed wire fences. The farmers thought they had found in them a panacea for keeping out tramps and boys. Instead, on the contrary, they caused more injury than smooth wires; for, with the latter, trespassers would slip through and leave them intact; now, with the barbed wire, the delinquent's pocket knife is provided with a strong wire cutter, which clips the barbed wire as a beaver's tooth pierces hemlock. Thus the farmer has a few yards of fence ruined here and there. These barbed wire fences, in fact, gave an impetus to the sale of handy wire cutting tools at country stores. So we see how a supposed advantage in barbed wire fences is counteracted by an increased sale of small hardware for the surreptitious cutting thereof.

The Slav mine worker is a peculiar person, but his Pennsylvania home is about on a par with those in his own Slav countries. But his own native homes, made up as they are of entire tree trunks, mortised, are much better fitted for keeping out the cold in winter than the $\frac{1}{2}$ -inch American planking. Many of the Slav mine workers, from motives of economy, house together a dozen in a room.

Life amid the darkness of the mines becomes second nature to the toilers. One miner who thought to do better as a farmer tried it for a year, spent all his little savings, and, finding himself poorer, preferred to return to the mines. Why, he was asked. Because every fortnight there was some cash to see—steady, sure wages; whereas after a year of land culture he received nothing.

To the visitor the tremendous amount of labor involved in the mining and preparation of anthracite leads to the idea that the coal is too cheap. At the top of the

breaker there are full grown men directing the huge coal as it comes down the chute from the car just tilted. This is unskilled labor, but men must be employed; boys would scarce be strong enough for the work. Now these men only receive \$1.50 per diem of nine hours, but perhaps that is no harder work than that of the men in the subway trench at the same rate of pay.

Summit Hill is the highest, cleanest and prettiest coal mining village in the anthracite regions. The altitude is 1660 feet or thereabouts. The roads are the pure, unstained whitish gravel, and there are no culm heaps or anything else higher up to be washed down by the rains. The houses are bright and clean—in fact, the whole place is the best illustration yet seen of a certain soap advertised "Spotless Town."

In the coal region the disposal of articles made from coal is a minor industry of some importance; manufactured into paper weights, candlesticks, &c., it is sold at about 50 cents a pound, or at the rate of \$1000 a ton. A rather ingenious fraud in the coal curiosity line was exposed at Summit Hill. There are offered for sale at some stationers' and jewelers' shops in the mining towns miniature *fac-similes*, about 4 x 5, of breakers. Apply a match to a corner of this model piece of "coal," and lo, it instantaneously begins to melt and run. It is nothing but a black wax composition—common mineral wax and lamp black. Some ingenious Yankee had at one time bought a real coal breaker miniature, and promptly saw how he could make a plaster cast of it and reproduce it in black wax *ad infinitum*.

At Tamaqua the mines were closed for the day, and the miners and mine workers had donned their best, standing about the corners conversing and idling. Very few busy themselves on self improvement. Any occupation would be better than loafing around street corners.

During the strike a story was sent out of men compelled to sleep below in the mine stables, but it was entirely by choice and not by necessity that the Slavs did so. They did it to save money. The stables are all right—well ventilated, scarcely any objectionable odor, warm in winter and cool in summer—but of course everything is in pitch black darkness always, save for the smoky flare of the miner's lamp or (in the more progressive mines) the eight or nine glow lamps. But the black roof and walls so instantly absorb the light from the electric bulbs that at a little distance they look like dull, yellowish red pear shapes, and their light penetrating efficiency is reduced from 16 candle-power to about half.

Every mine has its temporary hospital down below—a room cut in the rock, slate or coal, provided with stretchers or cots, tables, lights always burning, turned low, and a telephone for summoning professional assistance. Some of the hospital rooms have the appearance of being so well used that it looks as if accident cases must be brought in every half hour. But nothing of the sort. The mine workers use the hospital as a sort of parlor and are not averse to holding a little conviviality there.

Shenandoah was the seat of war for a long time last year. It is among the least inviting mining sections and towns visited. Ugly nondescript houses, wretched streets—there seems to be not a whit of municipal pride about the place. A town without a showing of municipal pride is in a poor way. There is material right at hand to make Roman roads that might last 2000 years without repair. Coal ash and *débris* is in hill lots about the region, and would, properly rolled down, make excellent roads, mixed and atop of the present clayey, miry streets of Shenandoah.

The sentiment probably occurs speedily to the casual visitor to the anthracite coal fields that operators should treat in a liberal spirit any demand of the mine workers for an increase in compensation, because of the fact that much of the work involves arduous labor; and yet the fact must not be lost sight of that, as compared with other lines of employment equally wearying and arduous, their compensation is regarded by some as fairly liberal, and that the damp and darkness of the mines (which has such an effect upon the chance observer) has no terrors for the mine workers. They get used to it, and prefer work inside the mine to work on the surface, because,

for one thing, of the equal temperature throughout the year—no blizzards and no sunstrokes a thousand feet underground—and also because of the usually enhanced pay.

According to the local bankers nearly 75 per cent. of the extra payments received under the Gray Commission award has been put on deposit by the miners, the foreigners especially banking their money. The storekeepers say that most of the miners have paid the bills which they ran up during the strike and that business is good. "The month of June," said a large retailer in Scranton, "was the best we have experienced in three years, and the same can be said of every merchant in the region. The miners have also had a good month, and we hope that they will continue to work steadily for some time to come."

The amount of labor involved in the production of marketable anthracite, after it leaves the mines, is what astonishes the observing visitor. There are the costly giant breakers to build, equipped with complex mammoth machinery, which costs a fortune in itself. Literally every pound of coal, after going through the breaker, passes under the eyes of a small contingent of sorters or pickers on its downward journey. Of course, thousands of pounds soon slide under the eyes of a couple of workers, but not too fast for them to do their work of sorting. But who, among outsiders, would think that so much trouble was taken with coal we often carelessly burn by the ton? It is almost unbelievable—that remark about "every pound of coal" passing under observation. The term "manufactured coal" has been applied to this anthracite over which so much care is exercised.

From different tradesmen it was learned that some mine workers, who had, at the tether end of last year's voluntary idleness, run into debt, had not displayed the same eagerness to rush in and pay their back debts as they had displayed in lining up at the mines to receive their back pay. Some of it went into the banks and some was sent abroad. There are exceptions to every rule, and the percentages change with the character of the mining population, whether it be Anglo or Slav.

Manganese Ore Industry of the Caucasus.

The following is a summary of an article, furnished to the *Moniteur des Intérêts Matériels* of June 11 by a Russian correspondent, reporting on a conference recently held at St. Petersburg to consider suitable measures for ameliorating the condition of the manganese trade and industry in the Caucasus.

In past years, before managanese was discovered in Brazil and the East Indies, the mineral from the Caucasus held a preponderating position in the world's supply, both on account of its purity and richness in metal. It is stated that this position might still be upheld were it not for the irrational and onerous manner in which the working and marketing are conducted.

The following table shows the production in, and exportation from, the Caucasus of manganese ore, during each of the last seven years:

Year.	Production. Poods.	Export. Poods.
1895.....	7,208,649	10,106,870
1896.....	9,706,288	8,807,645
1897.....	12,131,807	10,899,736
1898.....	16,259,204	14,610,945
1899.....	34,052,432	24,058,581
1900.....	40,363,486	25,605,626
1901.....	22,569,035	20,730,000
1902.....	24,943,315	27,499,000

Pood = 36 pounds (avoirdupois).

It has been suggested that, rather than export the mineral at a reduced price, the question of utilizing the raw product in Russia itself should be considered with a view to transforming it on the spot and opening up a trade in the finished product. The necessity of some immediate action is evidenced by the fact that owing to the crisis through which the metallurgical industry in the South is passing more than 50 per cent. of the existing coke furnaces are shut down, and less than 50 per cent. of the productive capacity of the blast furnaces is utilized.

M. Zeidler, the director of the Société de Kertch, has drawn up an exhaustive report recommending the erection of blast furnaces at Poti or Batoum close to where the mineral is found, and urging, on account of the geographical position of the Kertch Works, the repayment of the import duties on foreign fuel necessary in this manufacture for export.

The special commission appointed to examine the question have also presented a detailed report on the possibilities of the production, for export, of ferromanganese in Russia, demonstrating by statistical comparisons that, unless the mineral industry of the Caucasus receives special advantages through export bounties and reduced transport rates, Russian ferromanganese cannot compete successfully in foreign markets. The granting of such benefits to the Caucasian industry alone is, however, opposed by the representatives of the manganese industry of the Nicopol district; albeit the production there only amounts to 4,000,000 poods.

The request for reduced transport rates has been refused again quite recently, the authorities at St. Petersburg expressing their opinion that such reduction would only benefit foreign buyers by causing a drop in the price of the mineral, this being the result of the reduction which was made in 1899.

In view of the many conflicting interests, the conference decided to leave the Government to settle a course of action, submitting at the same time all the considerations set forth during the debate.

The progress which has already been made in the production and sale of spiegel and ferromanganese in Russia is evidenced by the following statistics:

	Production.		Sale.	
	1901.	First six months of 1902.	1901.	First six months of 1902.
	Poods.	Poods.	Poods.	Poods.
Spiegel (12 to 14 per ct.)	807,000	559,000	478,000	76,000
Spiegel (18 to 20 per ct.)	1,492,000	861,000	611,000	303,000
Ferromanganese	899,000	744,000	593,000	387,000

From investigations made in connection with the conference, it is estimated that the stocks of the mineral accumulated at Tchiatour, Tchikour, Poti and Batoum amount to between 30,000,000 and 40,000,000 poods, or nearly one year's shipments.

As showing the result of neglect in the mining and sorting of the manganese ore of the Caucasus, which is stated to be the best quality in the world, it is pointed out that the Brazilian product is obtaining a higher price on the London market. From the foregoing it is evident that with the sale and grading of the product better organized, and its status as regards quality rehabilitated, it should not be difficult to bring about an increase in the selling price. Afterward, an arrangement with Brazilian manganese merchants would probably be advantageous. Regarding the innumerable producers, commission agents, resellers, exporters, &c., concerned in the industry, a scheme of harmonious working does not look easy. Nevertheless, the conference considers that conditions can be regulated, the export business, including both remittances in advance to the mine owners and also the shipment, being taken in hand by one of the responsible banks established in the country, provided that both operations are carefully controlled in accordance with actual requirements. The working details of this scheme will be considered at subsequent meetings of the conference.

The Aultman-Miller Buckeye Company of Akron, Ohio, have been incorporated under the laws of Ohio, with \$750,000 authorized capital stock, to succeed to the properties of the defunct concern, Aultman-Miller & Co., which were recently sold to Judge William A. Vincent of Chicago, for \$640,000. The first impression was that the purchase was made in the interest of the International Harvester Company, but later reports state that Mark Hanna is the leading spirit in the new organization. It is expected to increase the capacity of the plant to 30,000 Buckeye machines annually.

The United States Steel Corporation are opening another mine in the coal territory which they secured with the Sharon Coal & Limestone Company. The new mine is in Mercer County, Pa.

The Binsse Drive Applied to a Milling Machine.

At the works of the Binsse Machine Company, Harrison, N. J., excellent results are being obtained from a milling machine arranged with the form of drive employed on the Binsse horizontal boring mills. The general appearance of this drive, as applied to the milling machine, is illustrated in Figs. 1 and 2. As will be noted, the cone has been removed from the spindle, and a spur gear substituted which conveys the power from the driving mechanism to the spindle. A special set of bearings, it will be noted, were placed on the side of the machine for holding the shaft of the driving mechanism, and a bracket bolted to the side of the machine holds the apparatus rigidly in place.

The primary object in substituting the new drive for

speeds following each other in geometrical ratio, while with the ordinary back gear this is not obtained.

By employing the drive having the cone upon a separate shaft above and in back of the main spindle, the rotations of the cone shaft and pinion may be coincident with those of the cone itself, or by means of the gearing provided the cone shaft may run considerably slower than the cone. The construction and functions of the drive will be observed from Fig. 3. The hub of the cone M turns freely on shaft L. The steel pinion A is keyed to the cone hub and turns with it. The sleeve and disk E also turn freely on shaft L. Upon the two pins F compound gears B C turn freely, the two pins and the two compound gears balancing each other. Supposing E to be stationary, the rotation of the cone also turns the pinion A; and this meshing into the gears B, while the smaller gears C mesh into D, which is keyed to the shaft

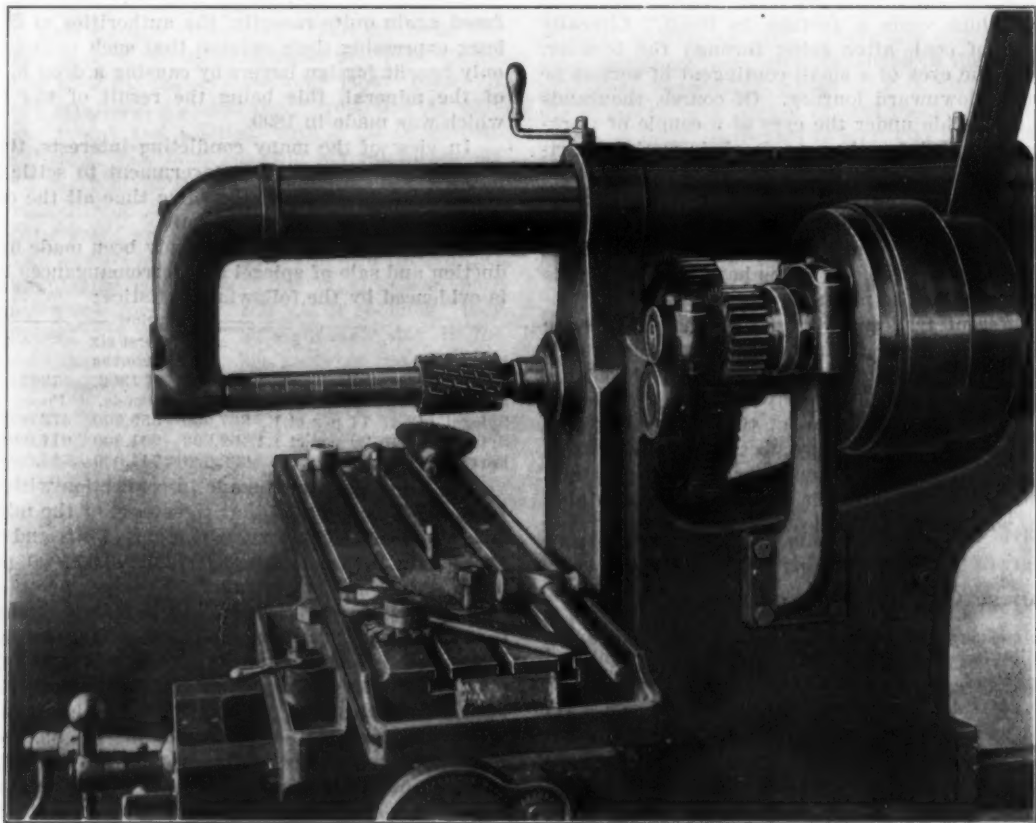


Fig. 1.—Showing Application of Drive.

THE BINSSE DRIVE APPLIED TO A MILLING MACHINE.

the ordinary one was to obtain more power. Mr. Binsse contends that one fault with milling machine practice to-day is that the machines are proportioned far in excess of the driving capacity. In other words, the ordinary milling machine is capable of standing considerably more power than is now provided, without necessitating the changing of any of the other features of design.

The machine, as equipped with the Binsse drive, is capable of utilizing three times as much power as can be used on the machines equipped with the ordinary back geared drive. Work is now being performed on the machine illustrated which is far in excess of anything possible when the machine contained the original cone and back gear.

Another advantageous feature of the Binsse drive is that the tugging strain of the belt is removed from the spindle of the machine, and consequently greater accuracy can be obtained. Still another feature along this line is that the belt can be applied at any angle, which is a decided advantage over having the belt run vertically.

One of the most important claims for it, however, is that it permits the devising of a correct ratio of cutting

L, the shaft is then driven at a speed considerably less than that of the cone. The speed ratio is fixed by the numbers of teeth in the gears. With E being made to turn with the shaft L instead of being stationary, the compound gears B C could not turn on their pins, and the entire system, including the cone M, the compound gears, the disk E and the shaft L, would all turn together. The turning or holding stationary of E is accomplished by means of clutch G. This is feathered upon the hub of E, being of the double faced multiple toothed type. When G is moved to the left it engages the fixed clutch I, which is keyed into a stationary hub, H. The disk is then held from turning, and the slow motion of the shaft L results. The hub H is part of a standard which supports a forked shipper, which moves the clutch. When the clutch G is moved to the right it engages with J, which is keyed to the shaft and carries the driving pinion K, which meshes into the spur gear on the main spindle of the machine.

With the clutch in this latter engagement the faster rotations of the spindle are secured. The clutch being fixed in the middle position, the cone will turn freely

without driving. In mentioning the forked shipper the usual arrangement is alluded to. In the particular instance of this article a knurled disk is substituted, as will be observed in Fig. 1.

Rapid Transit Train Approaches.

It is a curious fact that as facilities for rapid transit increase in large cities, the greater is the rush to make use of them, so that in a limited area it is as impossible

certain hours of the day, on the Brooklyn Bridge to any except the most robust, and no remedy for the congestion has even been suggested, much less put in force. The tunnel under the North River which the Pennsylvania Railroad is to build will relieve the lower part of the city of those who have business higher up in it, but will not benefit the persons who live in Brooklyn, or on Long Island proper, whose places of business are in this city.

At a meeting of the New York Railway Club, W. W.

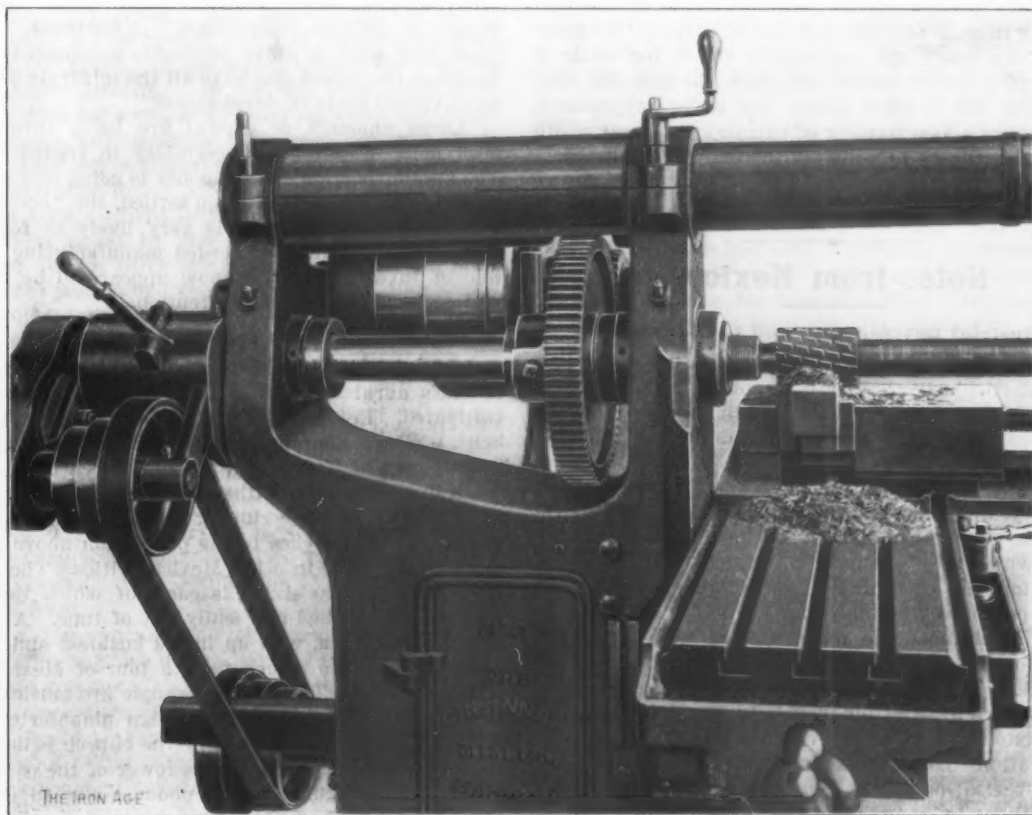


Fig. 2.—View from Opposite Side of Machine.

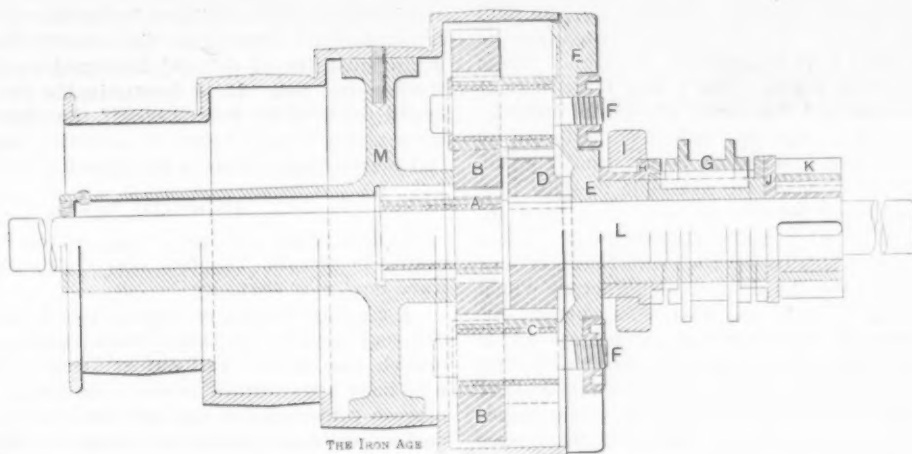


Fig. 3.—Section Showing Arrangement of Gearing.

THE BINSSE DRIVE APPLIED TO A MILLING MACHINE.

to transport all who desire to travel as it was before the improvements were made. This is shown daily at the Brooklyn Bridge, and may also occur in the underground roads, which will soon be in operation. Unfortunately for New York, its topography is such that, dealing with the swarming thousands who earn their bread in it will always be a problem which will tax the ingenuity of those who endeavor to solve it, and as the population increases largely every year, the time is not far off when easy locomotion will be impossible. It is in this case now, at

Wheatley presented an array of facts and figures, which are pregnant with suggestions. Summing up all the persons likely to use the new bridges now in course of construction, including tunnels and all approaches to this city of whatsoever nature, he says:

"With a population ten years hence in the metropolitan territory of 6,000,000, and a possible daily travel of 8,000,000, it is probable that the number of people seeking quick transit to and from their businesses will be 500,000, in lieu of half that number at present. The

next five years will be full of interest as the problem of dealing with the rapid transit question develops."

It is not only the carriage of the population which is to be settled, but how to get them into the trains after the railways and tunnels are in working order. It is difficult to see what measures can be adopted in New York to make free entrance accessible to the weak and the strong alike, for the simple reason that the superficial areas existing are too contracted. During most of the business hours of the day there is "ample room and verge enough," but in the early hours, when every one wants to get everywhere at once, the hurrying throngs congregate in numbers that will not be stayed. No force of police can exert any appreciable effect, for while it may control a few in certain localities, the mob, for such it is, bulges out in other places and defies suppression. It will require a vast number of entrances of great width to admit passengers to trains with comfort to all. Just how this is to be accomplished in the depots of the future in this city remains to be seen.

Notes from Mexico.

Industrial Development and Investments.

DURANGO, July 28, 1903.—The English press of Mexico, and particularly that of the capital, is doing excellent work in the way of making known the opportunities which exist for profitable investments in the republic. In the columns of these newspapers visiting foreigners give free and copious expression to their impressions of the country, and indulge in optimistic predictions in regard to the chances for money making in the particular fields in which they are most interested. The views of these visitors are exceedingly rose colored, for the most part, and can hardly be taken unreservedly. The glamour of a new environment, of unaccustomed scenes, and the witchery of skies perpetually clear, too often lead to exaggeration, even when the observer is unconscious of the least desire to paint his picture in too glowing colors. It is a well-known fact that the rarefied atmosphere of high elevations has a peculiar effect upon the visual organs. It also induces a mental buoyancy, which may not be without influence upon the mental view. Profits may seem nearer, and, perhaps, larger, at an altitude of 8000 feet than at sea level.

That great opportunities exist here for the profitable employment of capital is undoubtedly true, but the field is no longer a virgin one. Caution must be used here as elsewhere, if disaster is to be avoided. Too much stress should not be laid upon the fact that a very large amount of United States capital has been placed in Mexican investments, or, rather, this fact should be ballasted by another, to which equal prominence is not usually given, and that is that no statistics are available to show how much of the aggregate amount invested has been injudiciously placed, if not actually thrown away. There are many openings in Mexico for the establishing of new industries, especially for the lines of manufacture which have iron and steel for a basis. Plants for turning out agricultural tools and implements, electrical apparatus and supplies, iron and wire nails, wire goods and wire fencing, window glass, and other manufactured articles in general demand and at present imported, would doubtless succeed and prove profitable, but such enterprises should be launched only by persons of experience, with adequate capital, and after a thorough study of the situation and of the problems to be faced. There has been a great deal of money wasted in reckless mining investments, as well as in questionable agricultural schemes, notwithstanding the fact that both these lines of industry offer exceptional opportunities for profitable investments.

These observations should be taken in a general sense and not as having special reference to the views of a more than usually competent investigator of industrial affairs, Professor Sayus, who has been studying the situation here. He came as the representative of the French Board of Trade, the French Minister of Commerce and of other European bodies interested in commercial matters. The professor predicts that "after the

monetary change now under way is realized, there will come to Mexico such a stream of capital from the United States, England and France, that the investments of the past will look very small in comparison." The United States will lead in this movement, he believes, with France and England following, and Germany, "which fears the competition of the United States," coming later, "co-operating" rather than competing "with the Americans." This distinguished European observer declares that "Germany could never compete in the supplying of machinery for the mines and plantations of Mexico," and in the matter of railways, "the United States is without competition." "Germany," he says, "can only hope to make profitable investments in Mexico when the Americans have all the mineral resources in an advanced stage of development."

Large amounts of capital are being invested here even now, despite the uncertainty in regard to silver. The greater portion of this money is going into mines and lands. The currency question settled, the "boom" which Professor Sayus foresees is very likely to follow, and then the establishing of needed manufacturing plants, a line of investment which now appears to be neglected, will perhaps receive more attention.

Market for Church Bells.

There is a large field in Mexico which, if the evidence of one's aural sense is to be trusted, is not being well cultivated. Reference is made to the market for church bells. Where churches are so numerous—there are 14 in this city of 32,000 population—church bells are very much in evidence, notwithstanding the fact that the time and duration of their ringing are regulated by law. The proportion of churches to the population above indicated is about the same in other Mexican cities. The churches have from two to six bells each, of which the greater number are cracked and sadly out of tune. A good, active bell salesman, well up in his business and speaking Spanish, ought to return from a tour of Mexico with a full order book. The Mexican people are musical as well as religious. The itinerant foreign pianoforte tuner is seldom turned away. Some of the church bells are very old and ponderous. One in the tower of the cathedral in the capital, weighing 27,000 pounds, was in danger of falling recently through the rotting of the beam from which it hung. It has been in service for more than 300 years. Bells of this class do not often need to be replaced by new ones. This particular bell is rarely rung, and is still in good condition, but in the towers of the different temples throughout the country there is an immense quantity of old and fractured metal fit only for the melting pot. It is inconceivable that much of it would not find its way there, if the church authorities were properly approached by a silver tongued commercial tourist representing a bell foundry.

Industrial Notes.

Among recent victims of the yellow fever, which is raging in Merida, Yucatan, was Emilio Puerto, a hardware dealer of that city.

A railway, 44 km. in length, is to be built to connect the coal deposits at Augustitlan, Michoacan, with the branch line of the National at Irimbo. The company, who have been formed to work the mines and who purpose to construct the line are known as the Compañia de Explotadora le Minas de Carbon de Michoacan.

A general meeting of the shareholders of the Galvanized Iron Company, S. A., of the City of Mexico, has been called for August 1. The business to be brought before the meeting will include the presentation of accounts and the election of a new Board of Directors.

A manufactory for high explosives is in the course of construction at Tinaja, in this State. It is expected to be in operation and to have its products upon the market in a few months' time.

A second open hearth furnace was started at the Monterey steel plant a few days ago, thus considerably increasing the output of steel. The company expect to begin making steel rails very soon.

The total value of Mexican products exported to the United States during the last six months of the fiscal year 1902-3 was \$65,625,103.01, an increase of \$7,868,-

999.33 over the total for the corresponding period in the previous fiscal year.

An extensive deposit of asbestos is reported as having been discovered in the State of Jalisco.

A call of \$5 per share has been made by the Board of Directors of the Monterey Iron & Steel Company upon the shareholders, making the seventeenth assessment upon the \$100 shares, of which \$95 per share will have been paid with the present call.

The substitution of steel frame buildings for stone structures in the capital is thus favorably commented upon by the local press: "The introduction of steel frames in buildings in Mexico has only been known during the last few years. It has revolutionized the erection of large edifices already. In the old days walls were built 6 feet thick for a two-story building, and constructed of small stones, knit together with good cement. They have withstood the earthquakes and ravages of time remarkably well; but to-day property is becoming too dear to admit of such a prodigality, that uses 25 per cent. of the ground occupied by the building for wall space. An ordinary two or three story building on the old plan was anywhere from four to seven years in building, while the modern steel frame buildings are erected in one year. All the steel buildings put up here have been constructed of American steel, under the supervision of American contractors."

The city of Leon, Guanajuato, is about to contract for a complete system of water works. Leon has a population of about 70,000 inhabitants. The cost of the improvement will be \$500,000.

An iron and brass foundry, as well as other industrial plants requiring equipments, is to be established by the Compañia Industrial y Explotadora de Maderas of Hermosillo, Sonora.

Orders for telephones and telephone appliances are being sent from this country to be filled in Norway. The fact calls for comment, and it is made in these terms by a Mexican newspaper: "It seems to be a rather curious thing that, being so far away, Norway can compete in telephones, but it is a fact that the Norwegian made telephone is the best known in this country, and when traveling in this republic one finds these 'phones almost everywhere."

The contract for the ornamental iron work to be used in the new steel frame post office building now nearing completion in the capital was placed with the Foundry del Pignone of Florence, Italy.

The American Car & Foundry Company of St. Louis, Mo., have been given an order by the Mexican Central Railway Company for a number of ballast and pulque cars. The latter are to be of a special type, easily convertible into cars for carrying other classes of freight.

The Mexican Central Railway Company will soon place orders for a number of new baggage cars and passenger coaches. Three new locomotives are being built by the American Locomotive Company for the Kansas City, Mexico & Orient Railway Company, and a number of new freight cars are being delivered to the Mexican International Railway.

J. J. D.

On the 29th ult. 22 carloads of galvanized corrugated sheet metal left the works of the Berger Mfg. Company of Canton, Ohio, for the Philippines. The steel is to be used in the construction of barracks for the United States troops in the islands. The Government contract for the shipment just made was taken by the Berger Company, with the time limit of 60 days, under a penalty of a forfeit of \$50 per day for each day required over the specified time. The Berger Company received the contract July 2, and completed it in 20 days, 12 days being consumed in the sheet mill and eight days in the Berger shop in the corrugating and galvanizing processes. The sheets range in length from 5 to 10 feet. The corrugated sheets, used where strength is sought, are about 26 inches wide, according to the length, and the flat sheets run 10 inches wider, according to lengths. The 20 days includes the crating of the goods and the loading of the train for shipment.

Marshall & Huschart Machinery Company's Reception.

In December of last year the store of Marshall & Huschart Machinery Company, 62 and 64 South Canal street, Chicago, was completely destroyed by fire. Since that time the company have been rebuilding, being delayed to some extent by circumstances beyond their control. On Saturday, 1st inst., they celebrated the return to their old quarters. The celebration was in the nature of a reception and banquet, tendered to their manufacturing friends whom they represent. From nine o'clock until nearly noon their newly constructed store was visited by a large number of their friends. The company occupy the first, second and third floors, on all three of which a large and varied assortment of machine tools is carried. The offices of the company are located on the second floor, and everything throughout the establishment is arranged for the rapid and economical handling of business, and they are now in position to carry a much larger stock than heretofore.

After the store had been thoroughly inspected and the guests were about ready to leave, Fred. Geier of the Cincinnati Milling Machine Company, Cincinnati, Ohio, on behalf of the Cincinnati manufacturers, presented to the Marshall & Huschart Machinery Company a handsome floral horseshoe, nearly 4 feet in height. Mr. Huschart responded for his company, thanking the donors for the kindly expressions of good will conveyed through Mr. Geier, and also thanked the Cincinnati contingent for a very beautiful "grandfather" clock, which had been received the day before. The party then left for the Union League Club for lunch, which was spread in the tower room, made famous by the visits of Grant, Sheridan, Garfield, McKinley and other well-known public men. After lunch a tally-ho was in waiting, which conveyed the party through the residence section of the South Side, stopping at the Washington Park Clubhouse for light refreshments. A trotting matinee was in progress, which was much enjoyed by the visitors. Returning, the party were taken to the Chicago Athletic Club, where an hour was spent in the plunge bath, after which the company's guests sat down to an elaborate banquet of nine courses. The decorations, consisting almost entirely of cut flowers, were superb. An orchestra enlivened the occasion with popular music, and the banqueters entertained themselves by singing songs, written specially for the occasion. Mr. Huschart, on behalf of his company, welcomed the guests, and introduced as the toastmaster of the evening Fred. Geier, who made an admirable master of ceremonies, and in introducing the several speakers showed a keen appreciation of the characteristics of each. The speakers were: E. P. Bullard, Frank Bloom, Harry Hofinghoff, E. E. Hanna, H. C. Elliott, R. L. Crane, A. Teuchter, Henry Dreses, R. K. Le Blond, B. B. Quillen, George Otting, Alfred Marshall, F. M. Huschart, A. Ransom and H. H. Roberts.

The following is a list of those present at the banquet:

- Geo. Otting, John Steptoe Company, Cincinnati, Ohio.
- H. C. Elliott, Marshall & Huschart Machinery Company, Cleveland, Ohio.
- R. L. Crane, Prentiss Tool & Supply Company, Buffalo, N. Y.
- Frank Bloom, National Machinery Company, Tiffin, Ohio.
- B. B. Quillen, Cincinnati Planer Company, Cincinnati, Ohio.
- D. B. Bullard, Bullard Machine Tool Company, Bridgeport, Conn.
- E. P. Bullard, Bullard Machine Tool Company, Bridgeport, Conn.
- Fred. Geier, Cincinnati Milling Machine Company, Cincinnati, Ohio.
- Geo. Ransom, Ransom Mfg. Company, Oshkosh, Wis.
- W. H. Reid, Marshall & Huschart Machinery Company, Chicago.
- Jacob Deltz, Deltz Machine Company, Cincinnati, Ohio.
- John Moningham, Moningham Machine Works, Chicago.
- Harry Hofinghoff, Bleckford Machine Tool Company, Cincinnati, Ohio.
- Alfred Marshall, Marshall & Huschart Machinery Company, Chicago.
- F. M. Huschart, Marshall & Huschart Machinery Company, Chicago.
- A. Ransom, Marshall & Huschart Machinery Company, Chicago.
- Adolph Meyer, Cincinnati Milling Machine Company, Cincinnati, Ohio.
- R. K. Le Blond, R. K. Le Blond Machine Tool Company, Cincinnati, Ohio.
- F. J. Dreher, Marshall & Huschart Machinery Company, Cleveland, Ohio.

H. H. Klusman, Greaves & Klusman Machine Tool Company, Cincinnati, Ohio.
 A. Teuchter, Cincinnati Machine Tool Company, Cincinnati, Ohio.
 Henry Dreses, Dreses Machine Tool Company, Cincinnati, Ohio.
 C. E. Holgate, Gould & Eberhardt, Newark, N. J.
 S. C. Schauer, Cincinnati Machine Tool Company, Cincinnati, Ohio.
 W. B. Anderson, Western Electric Company, Chicago.
 S. S. Davis, Chicago.
 H. L. Goeman, Chicago.
 E. E. Hanna, Chicago.
 H. H. Roberts, *The Iron Age*, Chicago.

The Pittsburgh Molders.

On Thursday, July 30, the wage matter of molders in the Pittsburgh district was settled so far as concerns the employers who are members of the National Founders' Association and the Manufacturers' Association of Pittsburgh. This covers over half of the 2500 or so molders and core makers employed in the district. The employers outside the associations have until Wednesday evening of this week to agree to the scale.

The previous scale, for the year beginning July 1, 1902, provided that notice should be given by April 1 if either side desired a change for the year beginning with July 1, 1903. This notice was duly given by the local officials of the Iron Molders' Union of North America, and active conferences were begun about May 1, so that the settlement has dragged along for three months. The experience very properly led to the adoption in the agreement of last week of a 30 days' clause, so that if either side desires a change from the new scale after July 1 next, notice will only have to be given June 1.

All molders and core makers are given an advance of 10 cents a day from the wages they have been receiving, and the advance is made retroactive to July 1. Those, therefore, who have been receiving the minimum of \$3 a day will get \$3.10, but the minimum is left at \$3, so that any men hereafter employed need not be given more than \$3, but they must, of course, be given at least that much.

The agreement in full is given below, it being noted that the first three paragraphs are the same as in the old agreement, that no holidays are given, only extra time being provided for on certain days; that paragraphs 4 and 5 are new, introduced at the instance of the employers; that paragraph 6 is new, introduced at the instance of the molders; that the conference referred to in the latter part of paragraph 7 is to be held shortly at Atlantic City, and that in paragraph 10 the only change from the previous agreement is the substitution of 30 days for 90 days:

THIS AGREEMENT, made and entered into this thirtieth day of July, 1903, by and between a committee representing the Manufacturers' Association of Pittsburgh and the members of the National Founders' Association of Pittsburgh and vicinity, constituting the party of the first part, and a committee representing the members of the Iron Molders' Union of North America, in the Pittsburgh District, party of the second part, for the purpose of securing and preserving just and equitable conditions of labor in the workshops of the first party, whereby the interests of the employer and employee shall be properly protected; and for the further purpose of avoiding strikes and lock-outs by settling all disputes that may hereafter arise between the members of the parties hereto, during the term of this contract, in an amicable and equitable manner.

1. That any disputes or difficulties arising between the parties hereto during the term of this agreement shall be settled strictly in accordance with the New York agreement.

2. That nine hours shall constitute a day's work. All time worked over nine hours in any one day shall be considered overtime.

3. Time and half time shall be paid for all overtime, and double time shall be paid for Sundays, Fourth of July, Labor Day, Thanksgiving Day and Christmas.

4. There shall be no restrictions or fines placed on a molder for the purpose of preventing him in any way from putting forth his best efforts to produce the best quality and quantity of work and receiving compensation accordingly.

5. The party of the first part shall have the privilege of introducing molding machines and improved appliances of any kind in their foundries, and the right to have same operated by parties of the second part or any other parties they may find best adapted to operate said machines.

6. That the party of the first part will refuse to employ any apprentice who has started his trade with another firm and has not completed his regular apprenticeship, unless said apprentice receives the consent of the firm he started his apprenticeship

with. It is also agreed that apprentices shall be given work in all branches of the molding trade.

7. The minimum rate of wages per day of nine hours, during the term of this contract, shall be \$3 per day for journeymen molders and core makers working in machinery shops. It is understood, however, that this is not to affect core makers who are at present working for less than \$3 per day, or establish any precedent in the ratio of wages between molders and core makers, and if at a national conference between the National Founders' Association and the Iron Molders' Union of North America the minimum rate of core makers should be fixed at a rate less than \$3 per day, the rate for all core makers working under this contract shall be changed to that rate.

8. An advance of 10 cents per day shall be paid to each journeyman molder and core maker, beginning July 1.

9. It is further understood that any national agreement that may be perfected between the National Founders' Association and the Iron Molders' Union of North America, during the life of this agreement, shall go into effect at once, as between the members of these two associations, and that nothing in this agreement shall be understood as conflicting with any said national agreement.

10. This agreement shall remain in force from July 1, 1903, to July 1, 1904, and thereafter, unless 30 days' notice shall be given in writing by either party that they wish to terminate this agreement.

The following is a complete list of the members of the Manufacturers' Association of Pittsburgh, the number having been growing steadily, and it being expected that next year it will include practically all the foundries in the district:

Best Mfg. Company.
 Brush & Stephens.
 A. W. Cadman Mfg. Company.
 Chaplin-Fulton Mfg. Company.
 Chilled Roll Foundry Company, Vandergrift.
 Thos. Carlin's Sons Company, Allegheny.
 W. J. Early & Sons, Limited.
 Fawcett Machine Company.
 Frank-Kneeland Machine Company.
 Fischer Foundry & Machine Company.
 A. Garrison Foundry Company.
 Hail Steam Pump Company.
 Heyl & Patterson.
 Geo. A. Hogg Iron & Steel Foundry Company.
 Keystone Bronze Company.
 Lewis Foundry & Machine Company.
 Lincoln Foundry Company.
 McGill & Co.
 J. & J. B. Millholland.
 Mesta Machine Company, West Homestead.
 Mackintosh-Hemphill Company.
 The Marshall Foundry.
 National Gear Wheel & Foundry Company, Allegheny.
 Phillips & McLaren.
 Pittsburgh Valve, Foundry & Construction Company.
 Pittsburgh Mfg. Company.
 Pittsburgh Pulley Company.
 Pittsburgh Shear Knife & Machine Company.
 Pennsylvania Casting & Machine Company, Allegheny.
 Pittsburgh Brass Company.
 Pittsburgh Steel Foundry Company, Glassport.
 Rosedale Foundry Company, Allegheny.
 Reliance Pattern Company.
 Robinson Machine Company, Monongahela City.
 Simonds Mfg. Company.
 Specialty Mfg. Company, Allegheny.
 Standard Pattern Company.
 Seaman-Sleeth Company.
 Taylor-Wilson Company, Limited, Allegheny.
 Samuel Trethewey & Co., Limited.
 Union Foundry & Machine Company.
 Union Steel Casting Company.
 Wilson-Snyder Mfg. Company.

The above list contains many members of the National Founders' Association. Members of this association, but not members of the Manufacturers' Association of Pittsburgh, are also bound by the agreement, and are as follows:

Duquesne Steel Foundry Company, Coraopolis.
 Pittsburgh Malleable Iron Company.
 Sterritt-Thomas Foundry Company.
 Sterling Steel Foundry Company.
 Standard Sanitary Mfg. Company.
 Springfield Foundry Company.
 Velte Foundry & Machine Company.
 Wm. Yagle & Co.

It is understood that a purchaser will be named in a few days of the machinery, &c., of the bankrupt Mossberg & Granville Company of Providence, R. I., and that the business will be continued in another city under entirely new management. It is generally presumed that the building of wire machinery will be abandoned and only the jewelry machinery end retained.

Trade Publications.

Belt Conveyors.—The John A. Mead Mfg. Company of 11 Broadway, New York, announce the Ridgeway patent conveying belt as "something new in belt conveyors," in a 24-page booklet, standard size, 6 x 9 inches. The construction of the Ridgeway conveying belt is such that where the continuous bending occurs a sufficient number of plies of canvas are retained in the center or neutral plane of the belt, and extending completely across the belt, to answer all the requirements of holding the center and side portions of the belt in rigid relation to each other. At the point where the bending of the belt occurs there is substituted on the outside, where the strain and stress is greatest, for one or more of the rigid canvas plies, an equivalent bulk of high grade tough elastic rubber cover, the belt being of uniform thickness throughout.

Center Drilling and Reaming Chuck.—A new chuck of this type is being placed on the market by the Dwight Slate Machine Company of Hartford, Conn. The device is intended for use in the spindles of 10-inch and 13-inch single spindle drills and can also be used to advantage in the tall spindle of inches. With it, a bar stock, either round, square or hexagonal, can be centered accurately. A cold rolling stock, if cut off true, can be centered within 1-1000 inch. The chuck is to handle stock from 3-16 inch to 1-12 inch diameter.

Spring Seat Valves.—The Crosby Steam Gauge & Valve Company of Boston, Mass., are sending out a folder exploiting their latest type of spring seat valves. These valves are made with conical seats which constitute their characteristic novelty and present a double seating capacity, thus removing the liability of leaking or rolling in use. A central groove in the two seats permits of a springing action when they are together, preventing them from jamming when the valve is closed, and allowing a freedom of accommodation when subjected to any variation of temperature. When partially open outrushing steam or fluid does not abrade their surfaces, as ordinarily happens.

Pneumatic Pumping System.—The application of compressed air as a method of elevating and conveying water is exploited in a four-leaf folder issued by the Latta & Martin Pump Company of Hickory, N. C. The leaflet presents illustrations of the new displacement pump which is being built by the company. Points claimed for the pump are that it has no outside moving parts, no plungers or packings, requires no lubricating, is entirely automatic, has no dead center, and can be operated and controlled at will, even though located several miles from the point of control. The pump is placed at a point near a stream or well, the water flowing into the pump by gravity. The pump is connected by a double line of piping with the factory or mill where the water is needed, one of the pipes being used for conveying compressed air to the pump and the other for carrying the water to the factory. The pump consists of two vertical cylinders containing inlets on their upper ends for air and water and outlets for the water at the bottom. A special form of valve is placed at the top of the pump, allowing the compressed air to enter only one cylinder at a time. The air so entering forces the water from the cylinder by displacement. When all the water is expelled from the cylinder a small copper bucket which is hung in the interior of the cylinder, being unsupported by the expelled water, operates as a weight, and as soon as the water is entirely expelled actuates a small lever in the valve and releases the exhaust air, at the same time turning compressed air into the other cylinder.

Mining Machinery.—A very complete splendidly arranged catalogue of the mining machinery produced by the Jeffrey Mfg. Company of Columbus, Ohio, is just off the press. The book contains 128 pages and is filled with interesting matter relative to all classes of machinery for the economical production of coal. The machines illustrated include boilers, engines, dynamos, compressors, undercutting machinery, drills, locomotives, hoists, pumps, fans, &c. The half-tone engravings used are of a high quality, and the printing, which is done on a fine quality of coated paper, increases the mechanical excellence of the work. Illustrations of complete coal washing plants, power plants and coal cutting plants are shown.

Centrifugal Pressure Blowers.—The Garden City Fan Company of Chicago, Ill., have issued a folder showing their single and double centrifugal type pressure blowers arranged for belting or electric or motor drives. These blowers are made in ten sizes, ranging from 7 inches to 22 inches diameter at outlet, being adaptable to cupolas of from 26 inches to 84 inches in diameter.

Pulleys and Clutches.—We have received from the Composite Pulley & Clutch Company of Boston, Mass., a catalogue showing their method of applying cork inserts to pulleys and clutches for the purpose of increasing the friction. In the introduction to the pamphlet the purposes of the company are outlined as follows: "To manufacturers we beg to say that the Composite Pulley & Clutch Company do not manufacture pulleys or friction clutches. We aim to introduce cork inserts into every well-known make of pulley or clutch for frictional driving or braking purposes and will license manufacturers and builders of machinery in which drives or brakes are used to make and sell pulleys and clutches on a royalty basis, whether of metal, wood, paper or other material." After stating that the cork inserts can be applied at a cost no greater than that of equipping to cover pulleys with leather or paper, the company continue: "In the manufacture of iron pulleys it will be found necessary to cast the sockets into which the cork inserts are embodied. Preferably, we make the socket about 7-16 inch

deep and the pulley with a rim of $\frac{1}{4}$ inch will be found of sufficient thickness. On lighter rimmed pulleys we have several ways of reinforcing the back to lighten the weight as much as possible. We also control a patent covering the reinforcement of such pulley and on the under side by a lighter material such as wood. This gives the necessary additional thickness for the cork and retains its lightness."

Battery Telephones.—In a four-page leaflet the Holtzer-Cabot Electric Company of Boston, Mass., illustrate and describe their latest form of battery telephones for use in hotels, schools, factories, &c. These instruments are fitted with granular carbon transmitters and bipolar receivers and call bell of special design and self contained hooks. They may be used in pairs or in connection with intercommunicating systems as extension 'phones. This company have also issued a leaflet illustrating their latest four-magnet bridging generator with self contained cut in springs.

Pneumatic Tools.—The Chicago Pneumatic Tool Company, in their "Special Circular No. 38," illustrate and describe their jam riveter, Boyer drill and other styles of pneumatic tools and air compressors. The circular shows half-tone illustrations of the various tools, together with a notification stating the particular use to which each of the tools may be put.

Power Saws.—A folder issued by the Robertson Mfg. Company, Buffalo, N. Y., illustrates and describes three sizes of the Robertson rapid cutting power saws. These machines have a capacity up to $4\frac{1}{2} \times 4\frac{1}{2}$ inches, $4\frac{1}{2} \times 5\frac{1}{2}$ inches and 8×8 inches respectively.

Electric Fans.—From the American Blower Company, Detroit, Mich., we have received a neat four-page folder on which their sheet metal disk fans with self contained electric motor are illustrated. These fans are built in sizes of from 18 to 60 inches diameter for both medium and high speed work.

Conveying Machinery.—We have received from the Buhl Malleable Company of Detroit, Mich., a folder showing illustration of their malleable buckets, takeup boxes, bull chains, sawdust carriers and detachable sprocket chains.

Wood Working Machinery.—A number of inserts illustrating and describing various wood working machines to be added to the catalogue of the Berlin Machine Works, Beloit, Wis., are being sent to the trade as advance sheets preparatory to the issuing of a new catalogue. The machines included are double surfacer, self feed rip saw table, planer and matcher, circular resaw, gang edger and rip saw table.

Gas Furnaces.—An attractive folder issued by the Chicago Flexible Shaft Company of Chicago, Ill., in short, terse manner calls attention to the merits of the Stewart gas blast furnaces. Illustrations of the furnace are presented, together with testimonials which show that several of the 55 sizes in which furnaces are built have been in successful operation and have met with the favor of their users.

Fan Motors.—The Westinghouse Electric & Mfg. Company of Pittsburgh, Pa., have just published an interesting little pamphlet illustrating and describing their fan motors for alternating current circuits of the swivel and trunnion types. These motors are so constructed as to allow for the directing of the air current at any angle. They are arranged so that two speeds may be obtained by the use of a controlling switch mounted in the base of the motor. The high speed gives force and volume enough to insure ventilation in a large room, while the low speeds are best suited for desk fans and consume considerably less energy. They are made in both the bracket and desk types. In both styles the motor is hung upon a trunnion, the trunnion fork being mounted on a swivel. The bracket type fan may be adapted for use as a desk fan by removing the swivel elbow or adapter and inserting the stem of the trunnion fork into the base.

Gold Dredging Machinery.—The fifth edition of Catalogue No. 17 has just been published by the Risdon Iron Works of San Francisco, Cal. This pamphlet not only exploits the gold dredging machinery manufactured by this concern, but also treats with the general subject of gold dredging in Central California on a broad basis. The catalogue contains considerable trade information and is nicely gotten up with several good photographic views showing the operation of several of the largest types of the Risdon gold dredges.

Pumps and Engines.—A bright pamphlet nicely arranged in two colors has been received from the Standard Pump & Engine Company of Cleveland, Ohio, builders of gas and gasoline pumping engines, deep well pumping engines and small power engines. These pumping engines are designed to meet the requirements of the owners of suburban homes, florists, farmers and others who are not in touch with large water supply systems. The gas and gasoline engines are also of a type adaptable to home purposes and for use in small shops.

Roller Bearings.—A very complete catalogue of transmission hangers with antifriction boxes has just been issued by the American Roller Bearing Company of Boston, Mass. It is in pamphlet form, containing 24 pages and cover. Numerous half-tone engravings and sectional drawings showing the construction and adaptation of the various types of roller bearings manufactured by this company supplement the descriptions, which are very thorough in their details and contain much that is helpful to any one coping with the power transmission problem. The pamphlet is also replete with tables showing the various dimensions and giving other data concerning the products of the company. A page is devoted to the enumeration of well-known concerns who are among those using American roller bearings for various mill purposes.

The Iron Age

New York, Thursday, August 6, 1903.

DAVID WILLIAMS COMPANY,	- - - - -	PUBLISHERS.
CHARLES KIRCHHOFF,	- - - - -	EDITOR.
GEO. W. COPE,	- - - - -	ASSOCIATE EDITOR.
RICHARD R. WILLIAMS,	- - - - -	HARDWARE EDITOR.
JOHN S. KING,	- - - - -	BUSINESS MANAGER.

Hopeless Complaints Against Steel.

Consumers of sheets and tin plates are making considerable complaint relative to their lack of durability. While iron sheets are not rust proof, but are subject to oxidation when exposed to the atmosphere, consumers have found in their experience with steel sheets that the latter rust more easily, and are therefore shorter lived. The same claim is made with regard to tin plates having a steel body. The consequence is that roofers and cornice makers are having some trouble with customers to whom they have in recent years been supplying products made of steel. The complaint is not confined to any particular section of the country, but seems to be general. We are advised that sheet and tin plate manufacturers are being urged to return to the use of iron. Possibly those who are thus appealing to manufacturers are not aware of the fact that there are still some mills in this country continuing to produce iron sheets and iron body tin plates.

While iron sheets may be preferred by part of the consuming trade, steel sheets must be satisfactory for the great bulk of requirements, or the protests against steel would be much more clamorous. The production of steel sheets has grown wonderfully in recent years. The substitution of steel for iron is one of the great developments in the iron trade of the past quarter of a century, and it is one of those revolutions which will not go backward. The method of manufacturing wrought iron is not of a character to enable large masses to be easily handled. The manipulation of iron is a laborious process, requiring a great deal of hand labor, and it is one in which the quantities handled must necessarily be small. The introduction of processes by which large quantities of iron can be converted into steel at one operation—for instance, in the Bessemer converter or in the open hearth furnace—enables the production of the finished article to be secured at much lower labor cost. It also enables a larger tonnage to be turned out by a plant having the same investment of capital.

For general purposes sheet steel is not only a perfectly satisfactory material but it is superior to wrought iron. For instance, soft steel sheets have a much greater tensile strength and consequently are of higher ductility than iron sheets. They are, therefore, capable of being drawn, stamped, pressed or otherwise manipulated into forms which it would be difficult to secure by the use of wrought iron sheets. The uses for sheets have in fact widened very considerably with the excellent character of the material produced. Unquestionably the production of steel sheets has grown very much faster than iron sheets would have grown if the trade had continued to be confined to wrought iron.

Those who complain of the lack of durability of sheet steel are of course those who must use it in situations where it is exposed to the weather. It is possible that steel sheets when galvanized do not so thoroughly unite with the coating of spelter as to secure the durable material made when wrought iron sheets were thus coated.

The consumers who are complaining of such sheets, however, will be able to secure sheets made according to the old process if they are willing to pay the price. The galvanized iron sheet has not passed out of existence entirely. Those who complain, also for the same reason, of the lack of durability of tin or terne plates made of steel will be able to find such plates made according to the old method if they are willing to pay the price asked for this class of material. But even in the old days a great difference was found in the quality of the iron sheets and tin plates then on the market. Some were not nearly so good as others. Those who wished the most durable were compelled to pay a higher price. But the plea for material of greater durability will not now cause manufacturers to abandon the use of steel.

Checks and Bank Notes.

Every man increases the circulating medium when he draws a check. There is no limitation upon this sort of an increase of the currency so long as the checks are redeemable; so long as a man does not issue checks in excess of his credit at the bank. But there is a limitation upon the availability of checks as currency; they are acceptable only where the maker of the check is known, and for general use the bank note, which is practically the check of the bank, is necessary, for banks are semipublic institutions and their notes are safeguarded.

Still, about nine-tenths of the business of the country is done by checks and other instruments of credit than money, and while the growth of business calls for some addition to the stock of money, the use of coin and notes is so economized by the use of checks and drafts and the clearing house system that the increase in the currency need not be in anything like the ratio of the increase of business. Since the revival of business began the increase in the volume of money has been very small in comparison with the increase in the volume of business measured by bank clearings.

For the settlement of balances, for the retail trade, and for the ordinary requirements of parts of the country where checks are not common or convenient, it is probable that the supply of currency is ample, and it is sometimes thought to be redundant. There is little doubt that it is redundant at seasons when there is the least need. The demand for an elastic currency is not simply for one that will expand; it is quite as much for one that will contract. But every fall there is created a need for a large addition to the currency, which cannot be supplied by drawing more checks or larger ones. The cotton and the cereals have to be paid for with money. There is a period of three or four months when there must be a great deal more money, or some effective substitute for money, outside of the banks and in the hands of the people, than during the rest of the year, and this is the fundamental fact that the opponents of currency legislation cannot be induced to consider.

A prominent Western Congressman has been assuring the country that the volume of the currency is plenty large enough, and he has just been supported by one of the most distinguished Western Senators, who says that the people of his State have all the money they want; there is no stringency in his State. It would be a very remarkable thing if there were. Just now his constituents are so busy gathering their crops that they cannot go to town and make their ordinary purchases, and there has been some check to retail trade in consequence. There is in his State probably less need of money than usual. But by September the farmers will have quantities of corn and wheat to sell. It is reported from Kan-

sas that the farmers will try to market their grain early, being satisfied with present prices, and there is already difficulty about getting cars enough to carry the wheat out of the State. The grain buyers go to the banks for money. For commercial purposes they would not want currency, but a bank credit against which they could draw checks. But for going around from town to town buying wheat they must have notes. The banks can get the money for them only by collecting money from other customers and calling their loans, including the funds that they sent to New York in the spring and summer, and which are employed, and must be withdrawn from the persons who have borrowed them. The result is tight money and high rates. The effect is felt not simply by the speculative community, but by the whole business community. Last September the national banks in three-fourths of the reserve cities held less than the statutory amount of reserves, and of the banks that had drawn down their reserves the most were in the West. Every fall there is a monetary stringency, and not infrequently a panic, or the danger of a panic, is reached.

The advocates of an asset currency, and those of the less radical plan for an emergency currency, have stated the facts and proposed a remedy supported not only by ample financial authority, but by abundant experience. The opponents ignore the facts, the experience and the arguments, and simply repeat that there is plenty of money in the country. They profess to fear inflation, but an efficient redemption system has always been a safeguard against that, and if that is not enough, a tax on emergency circulation certainly would be. Before Congress meets again there will have been another crop moving season, and if there shall be as tight a money market as there was last fall, or a tighter one, Congress will have another lesson.

The Practical Aspects of Radio-Activity.

Those who cannot follow with entire comprehension or adequate appreciation the unfolding of new vistas in physics and chemistry which have attended the recent investigations into the surprising phenomena of radio-activity, especially since the segregation of radium has been effected, are beginning to press for answer the premature and impertinent question of practical utility, "What is it good for?" Probably there never was, and never will be, a time when this question could be comprehensively and satisfactorily answered concerning anything material. In great degree the progress of civilization consists in finding new uses for things, and this process may reasonably be expected to go on, if not forever, at least until the end of terrestrial phenomena in which humanity has interest.

Those most familiar with the phenomena of radio-activity as exemplified in radium are finding cause for congratulation that it is not so abundant in nature as to be possible of accumulation in considerable quantities, at least until we know better than we have yet learned how to utilize and curb its tremendous energies. Meanwhile, however, enough is known to permit an answer to the question, "What is the good of it?" by showing that it has a utility almost incalculable even at the threshold of its employment in the arts and sciences. In Germany and France radium is manufactured on a commercial scale, and at a price of something like \$60,000 per ounce it is called for in quantities far exceeding the supply. Obviously, however, its rarity and high cost have sharply restricted experiment and investigation with it, and that in these circumstances it has developed any utility at all shows what a wealth of possibilities re-

side in this most interesting element, by itself and in combination with fluorescent compounds.

For uses in which its value is established beyond the range of comparison with any other known form of matter, what may be correctly described as the commercial demand for radium is already in excess of the known or probable supply. These are included in its range of applications in the field of medicine and surgery. The uses of the X-ray have been restricted by the fact that with the best appliances yet devised its control has been found impossible. For this reason its therapeutic value has been difficult of establishment on a basis of conclusive demonstration, and the results attending its use have been capricious—sometimes conspicuously and apparently miraculously beneficial, in others negative and in still others harmful. Radium is a source of rays having all the value of the X-rays, with the advantage of beautiful constancy and absolute susceptibility to regulation. Instead of the broadside bombardment of a cumbersome focus tube as large as a summer squash, a glass tube no larger than a goose quill, containing one-fifth to one-tenth of a grain of radium, has already been found as effective as a costly and elaborate electrical apparatus, and has accomplished results in the treatment of cancer which exceed the best of those accomplished by the X-ray. The ease with which it can be applied locally, even in such restricted areas as the nostril or the throat, is an immense advantage in surgical employment. Practical results in the clinics of London and Vienna show that it is capable of curing what were previously regarded as incurable cancer growths in the tissue. The confidence with which the medical profession is turning to radium to accomplish that which with the cruder agency of the X-ray apparatus was only occasionally attained rests upon a substantial basis of results accomplished.

As an agent in illumination, the possibilities of radium are beyond estimate. Probably some misunderstanding exists in the popular mind on this point. Radium is not, we believe, in itself luminous, nor does it give out light rays. To produce the phenomenon of luminescence it needs to be in combination with a substance possessing the property of fluorescence. This property has been compared by Hammer to the operation of a step down transformer. The action of a fluorescent material is to alter the short waves of the ultra violet rays, which are invisible, into the waves of greater length which are perceptible as light rays. A very little radium will so powerfully excite the phenomenon of fluorescence in sulphide of zinc as to make a most effective and practically permanent illumination. Indeed, all the marvelous energy of radium may be converted into visible light, whereas all the artificial illuminants now employed are extremely wasteful of energy in producing a great deal more heat, which cannot be effectively utilized, than of light, which is wanted. Experiments with radium in illumination will probably in the near future give results of great value in light production, and will effect economies of coal in connection with artificial illumination which are of incalculable economic importance. These experiments are likely to extend over the whole field of the known radio-active substances, and may give ultimate significance to the sententious remark of Sir Oliver Lodge that if the secret of the firefly were known a boy turning a crank could furnish sufficient energy to light an entire electric circuit.

In considering the possibilities of radium in its applications to the supply of other forms of energy than those expressed in visible light rays, one enters the realm of speculation. As a source of power it scarcely admits of comparison with carbon—solely, however, because

there is no reason at present known for believing that the available supply will ever be great enough to displace coal. What there may have been at one time is, of course, speculative. Such substances by their nature have been slowly breaking up ever since they were formed, and what we have to-day is probably all that remains of what has survived the disintegration process extending through many geological epochs. If we could produce it synthetically from the fontal element, which now appears to be hydrogen, the matter would present itself in a very different aspect. When this can be done we shall need a new literature of dynamics. On this subject the *London Times* says on what seems to be reckoned extremely good scientific authority:

The most striking fact of radio-activity is its unalterability. Radium contains an immense reservoir of energy, sufficient to maintain its continuous powerful radiations over many centuries; but all attempts to increase its activity and make it supply its energy at a faster rate have signally failed. Suppose that it is ever found possible to accomplish this, and to concentrate the output of energy, which is now being dissipated over several centuries, into the space of time represented by a few days or weeks—then there is not the least doubt of the result which would follow. Rutherford has calculated from his own experiments and those of Curie that the energy stored up in one gram of radium is sufficient to raise 500 tons a mile high. An ounce would therefore suffice to drive a 50 horse-power motor car at the rate of 30 miles an hour around the world. This possibility of our being able in the future to control the store of energy in radium and to liberate it for use as required at any desired rate is of course the most interesting feature of radio-activity at the present time. But it must be confessed that science holds out scant prospect of its fulfillment. No suspicion of its ultimate accomplishment has as yet loomed above the horizon of practical possibilities. If it ever became possible for radium, it would almost certainly be possible for uranium and thorium, elements which can be produced by the ton and which probably contain no less a store of energy than radium, but are evolving it at a vastly slower rate. Our fathers busied themselves with speculating what would become of us when the world's supply of coal was exhausted. A single step in science is needed for that problem to be answered in a manner beyond the dreams even of the scientific novelist.

Calculations of this character open a wide field of speculation, which are not quite practical with our present knowledge, perhaps, but are extremely fascinating. We do not need to enter it, however, to discover that all radio-active substances, and especially radium, which has a radio-activity estimated at a million times above that of uranium, have the highest practical utility, and that as fast as they can be produced uses will be found for them which may be of far reaching importance in the arts.

OBITUARY.

NOTES.

SAMUEL E. BURTIS, for over a half a century a leading hardware merchant of Brooklyn, died at the Colonial Hotel, Kitchawan, N. Y., August 3. Mr. Burtis was born in Brooklyn, and had resided there during his entire life. He entered the hardware business at 135 Myrtle avenue, where he remained until a few years ago, when he retired. He was a director of the Mechanics' Bank and of the Phoenix Insurance Company of Brooklyn.

JAMES A. NORCROSS, formerly of Norcross Brothers Company, contractors, died at Worcester, Mass., August 4. He was born at Winslow, Maine, March 24, 1831. His parents moved to Salem, Mass., when he was a boy, and there he learned the carpenter's trade. He formed a partnership with his brother, Orlando W. Norcross, in 1864, and they engaged in the building business at Swampscott. This was the beginning of the Norcross Brothers Company. They established their principal office in Worcester in 1866, and Mr. Norcross had made his home there since that time. He retired in 1897.

Two more additions to the extensive plant, another new kiln, and recent installation of new machinery, &c., for making pressed emery wheels has been made by the Abrasive Material Company of Philadelphia. Until now the wheels have been made by the vitrified process. The

makers, however, realize the need of special wheels for special purposes, and have decided to place on the market a pressed wheel that will for its special work equal those made by the vitrified process.

PERSONAL.

Charles F. Kenworthy of Waterbury, Conn., announces that he has recently entered into an engagement with the Sessions Foundry Company of Bristol, Conn., for the purpose of building furnaces of every description and using any fuel.

W. D. Crawford, who for a number of years has been superintendent of the Tidewater Steel Company's plant at Chester, Pa., has resigned to become general manager of the La Belle Iron Works, at Steubenville, Ohio. Charles Berkinbush will succeed Mr. Crawford.

Wm. Fred. Hickey, for a number of years connected with the New England office of Carnegie Steel Company and Illinois Steel Company, at 125 Milk street, Boston, has been appointed assistant manager of sales.

Dr. Joseph Struthers has resigned as associate editor of the *Engineering and Mining Journal* of New York to become assistant to Dr. R. W. Raymond, secretary of the American Institute of Mining Engineers.

John Horn has resigned his position as superintendent of the steel plant of the Worcester works of the American Steel & Wire Company to accept the office of superintendent of the Newburg Rolling Mills, at Cleveland, Ohio. Mr. Horn's men presented him with a diamond ring as a token of their regard.

J. S. Jeans, secretary of the British Iron Trade Association and editor of the *Iron and Coal Trades Review*, is expected to arrive in this country at an early date.

The business of the Beacon Engineering Company of Boston, Mass., has been taken over by the Ostrup Engineering Company of Boston, Mass., which latter firm will continue, with John C. Ostrup as president.

Wallace Buell has accepted the position of business manager of the open hearth steel department of the American Tube & Stamping Company of Bridgeport, Conn.

H. Macco of Siegen, Germany, a member of the Prussian Parliament and for many years connected prominently with the Siegen iron industry, is visiting this country. He is particularly interested in the iron ore resources and the transportation and handling of ore, being one of the leading authorities in Germany.

Tula Iron Company.

The Tula Iron Company, recently incorporated in New Jersey with a capital stock of \$4,000,000, have leased the property of the Tula Iron Works, located at Ferrara de Tula, about 60 miles from Guadalajara, Mexico, and consisting of a 15-ton charcoal blast furnace, rolling mill, foundry and machine shops and a large acreage of ore lands. The works have been in operation for some time and are said to be a paying proposition. The new company are making a number of improvements at the plant in order to reduce operating expenses and to increase the output. The capacity of the furnace is being increased to 25 tons per day by the installation of modern appliances, to supply the rolling mill, which has heretofore had a capacity in excess of the stack. A spur from the Mexican Central Railroad is also being constructed. The control of the company is in the hands of R. H. Beach, manager of the railway department of the General Electric Company, at New York, who is president. The other officers are: W. V. Snyder, secretary, and J. J. Mahony, treasurer. These, with S. W. C. Jones of Flint, Jones & Co., Mills Building, New York, and David Young of Jersey City, constitute the Board of Directors.

The Standard Steel Works of Burnham, Mifflin County, Pa., have had a wheel rolling mill built at the Benrather Maschinenfabrik, Benrath, near Duesseldorf, Germany. The machine, which is for rolling wheels in one piece, is now on its way to this country.

MANUFACTURING.

Iron and Steel.

On account of the shortage of natural gas in the Indiana district the Ames Shovel & Tool Company, Boston, Mass., have commissioned James J. Mahon, contracting engineer of Pittsburgh, to place a contract for them covering the installation of producers, alteration in furnaces and other equipment necessary to operate the entire plant of the Ellwood Steel Company of Ellwood, Ind., on producer gas. The new arrangement will not prevent the company from using natural gas when the supply is sufficient. The estimated cost of the work to be done is \$20,000 and it is anticipated that the alteration can be made without interfering with the steady operation of the plant. The Ellwood Steel Company have a yearly capacity of nearly 9000 tons of shovel steel, which is converted into shovels by the various shovel factories owned by the Ames Shovel & Tool Company.

The remodeling of the No. 6 furnace of the Cambria Steel Company at Johnstown, Pa., has been completed, two weeks ahead of the contract date. The new stack is 22 x 85 feet and has a capacity of 400 tons per day. It is equipped with an automatic skip filling arrangement, being the last of the Cambria furnaces to do away with all top labor. The work was commenced May 20 and the record made is regarded as very good.

The Lalance & Grosjean tin plate plant in Harrisburg, Pa., is being enlarged by an additional foundry building and a pattern room. The mill has been working full time all of this year and was compelled to cut short its summer inventory period.

The East End Rolling Mill, Columbia, Pa., resumed operations last week after an idleness of 14 weeks, but after running a short time was again stopped, this time for repairs.

The Illinois Steel Company have purchased improved property adjacent to their works at South Chicago, comprising 22 lots. The total cost was \$60,000. The property will be used for an extension to their plant.

The Embree Iron Company, Embreville, Tenn., expect to blow in the Embree Furnace about September 1.

The Sharpsville Furnace, at Sharpsville, Pa., which is now undergoing repairs, is expected to be blown in August 15.

It is announced that the Cleveland Furnace of the Cleveland (Ohio) Furnace Company will probably blow in by August 10.

The Durham Furnace of the Durham Iron Company, Philadelphia, was blown out for repairs July 10.

General Machinery.

The recently organized Commercial Tool & Stamping Company, Woodbury, N. J., have leased the plant of the Woodbury Mfg. Company, which they are re-equipping for general tool and die making and sheet metal stamping. The machinery was furnished by the Garvin Machine Company, Philadelphia agency, and the J. W. Cregar Company of Philadelphia.

The Canton Drop Forging & Mfg. Company, Canton, Ohio, are ready to begin the construction of their new shops, 50 x 125 feet, with additional power house and office building. A machine shop, 50 feet square, will be installed, which will be fitted up with new machinery, consisting of lathes, shaper, milling machine, nut and bolt cutter, drill press, shears and punches. They expect to have the shops ready for operation in less than three months.

The Horsburgh & Scott Company of Cleveland, manufacturers of steel and rawhide gears, are now occupying their new plant, on Hamilton street near Kirtland street. The building is 55 x 122 feet, two stories high, well lighted and well arranged. They have installed a number of new tools, including gear cutters, and are in shape to handle about twice the business that they did in the quarters at 108 Canal street, which they had occupied for a number of years.

The Harris Press Company of Niles, Ohio, manufacturers of the Harris automatic printing press, will erect a new building, 40 x 104 feet, two stories, and have announced that they will install new machinery, which will about double their present facilities. They are installing a large Corliss engine to provide power for the new addition.

F. S. King & Co. have rented the shop recently occupied by D. N. Walker, on Elm street, West Haven, Conn., where they intend to manufacture blanking, combination and compound dies, models and light machinery. They are also equipping the shop for the manufacture of sheet metal and wire novelties.

The Cleveland, Painesville & Ashtabula Railroad Company of Cleveland have completed plans for a carhouse and repair shops for their electric road. The building will be erected at Painesville, Ohio, adjoining their power house, which is now under process of erection.

The Youngstown Wire & Iron Company, Youngstown, Ohio, have recently organized to manufacture ornamental and architectural wire and iron work, such as bank and office railings, wire and iron window guards, sidewalk gratings and lights, stall fixtures, wire and iron fences, and fire escapes being a specialty. They have purchased most of their machinery from Strong,

Carlyle & Hammond, Cleveland, and Girard Foundry & Machine Company, Youngstown, while some orders have been placed with smaller concerns. They have all the machinery needed at present, but will be in the market later for punches and shears, lathes, planers and shapers, also bolt cutters and drill presses. The company will probably build next year. The officers are as follows: P. J. O'Neill, president; J. H. Wagner, vice-president; J. J. O'Neill, secretary and treasurer; G. D. Clifford, manager, and T. H. Hyde, engineer.

The Bovalrd & Seyfang Mfg. Company, Bradford, Pa., who have for a number of years made oil well drilling tools exclusively, are about commencing the manufacture of steam engines, air compressors, gas pumping machinery and gas engines. These various machines will be built from designs of Edward Gray, formerly of the Gray-Blaisdell Company. To meet the requirements of these additional branches a new fire proof machine shop and foundry are being erected and other buildings will be put up next spring. The company are in the market to purchase all the machinery necessary in a modern machine shop and foundry.

The Eddystone Foundry & Machine Company, Chester, Pa., closed their doors on July 31. It is understood that trouble among the stockholders is at the bottom of the suspension. The plant is a new one, having been built only three years ago.

Thomas Barnes, coal operator, of Barnesboro, Pa., has broken ground for a machine shop and foundry in which he will manufacture and repair all of his own mine cars and much of his other machinery.

The New Process Raw Hide Company, Syracuse, N. Y., have purchased a site for a new plant, but it is not their intention to build before next spring.

Power Plant Equipment.

The Hazleton Boiler Company, whose plant is located at Rutherford, N. J., have been placed in the hands of a receiver. The liabilities are reported to be \$127,812.76; assets about \$10,000.

The National Foundry & Supply Company, with G. D. Glinch and H. R. Will of Williamsport, Pa., as principal stockholders, have leased the old plant of the Lehman Machine Works of that city, and will manufacture hangers, pillow blocks, wall brackets, couplings and special castings. The firm will make a specialty of furnishing new manufacturing plants with power equipment. The plant consists of a group of buildings including foundry, pattern shop, machine shop and storage warehouse, the whole comprising 30,000 square feet of floor space. It will be in operation about September 1.

The Board of Water Commissioners, Sioux Falls, S. D., will receive bids until August 22 for pumping plant, consisting of one 3,000,000-gallon high duty pumping engine, one 3,000,000-gallon compound duplex pump, three 120 horse-power boilers and all appurtenances necessary for a complete plant.

The Board of Public Service of Cleveland, Ohio, will receive bids until August 13 for two direct connected generators with switchboard, to be installed in the engine house of the Kirkland street pumping station.

The municipality of Monroe, La., are asking bids until August 17 for direct connected engine and alternator, arc light transformers, &c. C. A. Downey is major *pro tem*.

The James D. Lalor Engineering Company of Philadelphia, consulting engineers, are equipping the Lippincott Building, Twelfth and Filbert streets, that city, with a light and power plant, the contract for which was awarded the Kingsbury, Samuel Electric Company, Baltimore, Md.

Proposals for the construction of a water works system at Cody, Wis., will be received until August 20 by L. L. Newton, town clerk.

The Foss Valve & Specialty Company have decided to locate at Taunton, Mass. The company were organized quite recently to manufacture a new valve which does away with all packing, the invention of Walter O. Foss. The business was started at Brockton, Mass. The officers of the company are: President, W. C. Tappan; vice-president, Walter O. Foss; treasurer, Charles H. Tappan; general manager, C. E. Anglim; secretary, D. L. Lowe. Capital has been subscribed in Taunton to increase the business.

Foundries.

The Smith's Falls Malleable Iron Works, Smith's Falls, Ontario, W. H. Frost, proprietor, have incorporated as the Smith's Falls Malleable Castings Company, with a capital stock of \$150,000. The new company will enlarge and improve the plant, about doubling the present capacity of 4000 tons. W. H. and James Edwin Frost are the principal stockholders.

The Denver Steel Casting Company and the Colorado Steel Casting Company, both of Denver, Col., have combined, and their future business will be conducted under the name of the former company. Employment will be given to about 300 men. A. T. Herr will be vice-president and general manager.

The Baldt Steel Casting Company will erect three buildings, each 300 feet in length and 65 feet wide, on a lately purchased tract of ground at New Castle, Del. The contract for grading has been let to Michael Reilly of Chester, Pa., who will also do the

grading for the new plant of the Brylgon Steel Casting Company on a tract adjoining that of the Baldt company. The Brylgon company will erect one building 65 x 100 feet.

The Seaboard Steel Casting Company of Chester, Pa., are completing a third furnace, which will be put in operation shortly. A new core oven has been built and a new boiler added to the battery in the power house.

Bridges and Buildings.

The Easton Foundry & Machine Works, Easton, Pa., have been awarded the contract to build a steel bridge across the Monocacy River at Bath, Pa.

The Toledo plant of the American Bridge Company has commenced work on a steel electric railroad bridge to be erected over the Maumee River near Perrysburg for the Toledo Urban & Interurban Railway. The bridge will be 1400 feet long, will have five spans of 160 feet each, and a plate girder approach. It is to be ready by January 1 of next year.

Fires.

The plant of the Pittsburgh Glass Company at Cincinnati, Ohio, was burned August 4. The loss is estimated at \$250,000.

The blacksmith shop of the Union Furnace Company, Buffalo, N. Y., was destroyed by fire July 25.

The plant of the Ontario Tack Company, Hamilton, Ontario, was destroyed by fire July 31. The loss is placed at \$45,000.

On July 23 the plant of the Keyser Mfg. Company, Chattanooga, Tenn., was damaged \$30,000 by fire.

The foundry and storehouse of the White-Warner Company, Taunton, Mass., were destroyed by fire August 2, entailing a loss of about \$50,000.

The works of the Rockdale Powder Company, Hoffmansville, Baltimore County, Md., were blown up July 29.

The foundry and machine shop of William Taylor, at Oblon, Tenn., were destroyed by fire July 22. The loss is over \$3000.

Hardware.

The Griffin Mfg. Company, Erie, Pa., have broken ground for a fire proof building, 60 x 140 feet, just south of and running parallel with their main factory. This new addition will be supplied with a separate power equipment and is to be used for a different class of work from their regular goods.

Ford Auger Bit Company, Holyoke, Mass., have purchased the property formerly owned by the Massachusetts Screw Company. It consists of a main building, four stories high, 40 x 155 feet, and an ell 34 x 65 feet. The Ford Company will build an addition, which they will use as a forge room, containing their heavy machinery, and which will be 55 x 65 feet. They intend to rent their present quarters, and also some space on the upper floors of the new factory. The factory will be run by water power. The demand for their patent auger bit and ship auger has been steadily increasing for many years, and business for the first six months of 1903 was 50 per cent. larger than for the same period of 1902. While they have been increasing their capacity steadily each year, they have reached the limit in their present quarters, and so were obliged to purchase new property. The company have started moving into the new quarters, and when they have fully equipped it with new machinery, will have an especially large and modern plant, which will be devoted exclusively to making high grade tools.

North & Judd Mfg. Company, manufacturers of saddlery hardware, New Britain, Conn., are now at work upon two new buildings. One is for new offices in connection with warehouses. It will be 60 x 160 feet, six stories and basement. The other is a strictly up to date building for annealing kilns, which will, when completed, more than double their capacity for malleable castings.

The Board of Trade of Sharon, Pa., are considering the offering of inducements to the American Steel Shovel Company of Lorain, Ohio, to locate in Sharon. Erie has offered a free building site.

The National Can Company, Detroit, Mich., are having an addition to their present plant built, 60 x 110 feet, three stories and basement, and an additional story is being put on the buildings now occupied. The total cost will be \$23,000, not including heating and plumbing.

The American Shear & Knife Company, Hotchkissville, Conn., notwithstanding the increased space secured by the addition built last year, have been compelled to put up another building, 20 x 30 feet, four stories, which, it is hoped, will provide ample room to meet the present large demands made upon them. The company make a specialty of the finest grade of penknives, to compete with the best English makes.

McLaren & Sprague of Toledo, Ohio, who have been identified with H. L. Mearkle in the company known as the Buckeye Screen Company of Toledo, have sold their interests to the Owosso Mfg. Company of Owosso, Mich., and the Toledo plant will be removed to Philadelphia, where it will be operated as a separate company known as the Philadelphia Screen Company. H. L. Mearkle will have charge of the business of the company.

The reasons for leaving Toledo are the desire to be closer to the Eastern market and the fact that North Carolina pine, which is used largely in the manufacture of screens, can be obtained cheaper in Philadelphia than in Toledo.

The Hillsdale Steel Boot Company, Hillsdale, Mich., have begun manufacturing operations and are now placing on the market new steel end gates for wagons. Orders already in hand will keep the plant running to full capacity for some time to come. The officers of the company are: President, F. M. Stewart; vice-president, E. J. Gulick, and secretary and treasurer, T. M. Fant.

Miscellaneous.

The Chicago Car & Locomotive Works have acquired the plant of the Pease Car & Locomotive Works, at Hegewisch, Ill., and incorporated with a capital stock of \$100,000. The combined plants are working to full capacity, and it is proposed to extend facilities. The president of the company is L. H. Baldwin and the secretary, E. Gaidzik.

The Regas Automobile Company, Rochester, N. Y., have incorporated with a capital stock of \$100,000, for the manufacture of automobiles, fitted out with air cooled gasoline engines. This company have no connection with the Regas Vehicle Company of the same city. The latter company will go out of business, and the Regas spring frame, which they manufactured, will hereafter be made by J. Harry Sager, who is a director of the automobile company. The other directors are Thomas B. Dunn, Carol E. Bowen and Robert C. Kerschner of Rochester, and L. Louis Willard of Binghamton.

The International Cream Separator Company, Lancaster, Pa., advise us that there is no truth in the report that they intend building a new plant.

The American Plow Company, Madison, Wis., are building a plant, 100 x 216 feet, which they will equip with modern machinery for the manufacture of agricultural implements. The engine was purchased from the Allis-Chalmers Company, Chicago, and Williams, White & Co., Moline, Ill., and the Bradley Company, Syracuse, N. Y., are furnishing the blacksmith shop equipment. The company expect to be turning out work in from 60 to 90 days.

In a few weeks the new plant of the Keystone Drop Forging Company, at Chester, Pa., will be completed. The machinery from the old plant at Germantown Junction, Philadelphia, is now being installed.

The Perfect Replacer Company have been incorporated with a capital stock of \$50,000, to manufacture the Perfect pressed steel car replacer. For the present the replacers will be made by contract. For particulars address F. William Snow, 29 Broadway, New York.

The Conrad Motor Carriage Company of Buffalo, N. Y., have been placed in the hands of a receiver. The nominal assets of the company are given as \$40,000 and the nominal liabilities \$100,000. A majority of the directors have petitioned for the dissolution of the company.

The Wallace Barnes Company, Bristol, Conn., manufacturers of small springs, will erect an additional building, 36 x 150 feet, half of which will be used as an addition to the tempering department, and the balance for the manufacture of forged flat springs. This latter department is to be transferred from an old building in order to make room for increasing business.

The National Projectile Works, Grand Rapids, Mich., manufacturers of lubricated wire patched bullets, will increase their capital stock from \$50,000 to \$100,000 and will issue bonds to the extent of \$25,000 to provide for the erection of a new plant. Modern machinery will be installed, but most of this will be special. The officers are Gen. William T. McGurkin, president; Adolph Leitelt, Jr., vice-president; Charles B. Kelsey, treasurer; Denson H. Armstrong, secretary and general manager; Frank W. Hine, attorney, and Myron C. Lisle, superintendent.

The Elk Carriage & Mfg. Company, Clarksburg, W. Va., have secured a site and will erect three buildings early in the year. They will probably not be ready to install the equipment before next spring, which with the buildings will cost in the neighborhood of \$20,000. For particulars address James Bowen of Tetrick & Bowen.

The creditors of the Akron Machinery Company of Akron, Ohio, whose business is in the hands of the courts, have decided to continue the business and withdraw from bankruptcy. The company manufacture mowing and reaping machinery. It is stated that 90 per cent. of the creditors have consented to a compromise.

Officials of the Peerless Motor Car Company of Cleveland, manufacturers of gasoline automobiles, announce that they have reconsidered the removal of the plant to some other city and that they propose to erect an addition adjoining their present factory, which will give them greatly increased facilities for producing automobiles for another season. They received a number of propositions to move out of Cleveland, but they decided that the advantages of Cleveland as a center for automobile material more than made up for the benefits that could be derived by moving to a small town as originally contemplated.

The Niagara Research Laboratories Company of Niagara Falls, N. Y., have practically completed their new plant on

Elizabeth street. The laboratory building is of pressed brick, three stories high and 40 x 180 feet. The necessary machinery and apparatus are now being installed.

The Structural Steel Car Company of Canton, Ohio, have asked the United States District Court for a jury hearing upon the involuntary bankruptcy petition filed against them recently by the Cleveland Punch & Shear Works, Acme Machinery Company and the Cleveland Pneumatic Tool Company of Cleveland. The claim is made that the company are not insolvent. The company were organized about a year ago to manufacture steel cars at Canton, Ohio. Embarrassment caused by internal dissensions followed soon after the plant had been completed, and the work was tied up until very recently, when it was stated that the company had reorganized.

The Acme Motor Car Company of Reading, Pa., have incorporated with a capital stock of \$200,000. The directors are J. C. Reber, G. D. Horst, Jacob Molde and J. D. Horst.

The Reading Detachable Chain Company, Reading, Pa., have incorporated with a capital stock of \$10,000. The directors are D. P. Brisse, L. X. Brisse and W. S. Brisse.

The New York Insulated Wire Company, New York, are about to erect an addition to their works at Wallingford, Conn. The building will be 60 x 100 feet and four stories high. The equipment has been arranged for.

The Carborundum Company, Niagara Falls, N. Y., have broken ground for a new fire proof building to be used as a mixing, furnace and transformer department. The building will be three stories high, built of iron and brick. It is located on Adams avenue, and will be 136 x 146 feet.

The American Seeding Machine Company, whose head office is at Springfield, Ohio, have selected Brantford, Ontario, as the location for a Canadian branch of their business. They have purchased the large factory to be vacated by the Cockshutt Plow Company when their new factory is completed, and will commence operations with 150 or 200 men.

The Pittsburgh Meter Company of East Pittsburgh, Pa., manufacturers of water meters, gas meters, proportional gas meters and gas pressure regulators, are making a large addition to their plant. The present building is 50 x 200 feet, two stories high, while their new building will be 60 x 220 feet, three stories high. This will more than double the present capacity. The new building is made necessary by the large increase in their business, which has so crowded their present plant that they find it necessary to have more room at once. In addition to their regular line of Westinghouse gas meters, gas pressure regulators and Keystone water meters, they have just put on the market a new dry gas meter which will be known as the Acme meter, and the space required to manufacture the new meter will be about two-thirds of the new building, as they have already booked large orders for them.

The Rogers & Thatcher Automobile Company of Cleveland have incorporated with \$150,000 capital stock and will enlarge their plant and increase their equipment. They manufacture a heavy touring car equipped with a 42 horse-power four-cylinder horizontally opposed gasoline engine. Their plant will be in operation about August 1.

The Alliance Asbestos Mfg. Company of Alliance, Ohio, have been incorporated with \$25,000 capital stock. Incorporators are John S. Moore, R. S. Kaylor, B. C. Allott, H. C. Koehler and O. U. Wakler. The Board of Trade of Alliance will donate a site and the company will erect a plant for the production of asbestos.

The Ames-Bonner Company of Toledo, Ohio, manufacturers of brushes, have outgrown their present quarters and have purchased a site of 6 acres in West Toledo, where they will erect a plant which will cost about \$75,000 complete. At present they employ about 225 people, and it is expected the force will be increased to 325 when the new plant is completed.

A brick building, 50 x 76 feet, is being erected as an addition to the Dangler Stove & Mfg. Company's plant of the American Vapor Stove Company at Cleveland.

Plans are being prepared for large car works for Nelson Morris & Co., which will be built on South Ashland avenue, near the river, Chicago. The plant will include, besides the main erecting shop, a boiler house, blacksmith shop and sheds. The estimated cost is \$300,000.

The stockholders of the Phillips Pressed Steel Company, Joliet, Ill., held their first annual meeting July 14 and elected the following Board of Directors for the ensuing year: J. E. Phillips, P. G. Rullen, C. F. Haley, R. L. Thoren, Grant Houston, J. C. Flowers and Henry Leach. The board was subsequently organized by the election of P. G. Rullen, president; C. F. Haley, vice-president; Grant Houston, secretary-treasurer, and J. E. Phillips, general manager. The company will begin the manufacture of steel barrels and other steel products within a short time.

The G. Drouve Company of Bridgeport, Conn., manufacturers of sheet metal work and of the Lovell apparatus for operating factory windows, report the following recent installations: Sheet metal work on building for Charles A. Matthies, White Plains, N. Y.; skylight and sheet metal work on the new building of North & Judd Mfg. Company, New Britain, Conn.; skylights on the new buildings for Barnum & Bailey Circus winter quarters, Bridgeport, Conn., and Lovell apparatus for the Thomas

Davidson Company, Montreal, Canada; worsted mills of Fred. L. Sayles Company, Pascoag, R. I.; the McNab & Harlin Company building, Paterson, N. J.; the Meridian Cotton Mills, Meridian, Miss.; Clinton Woolen Mfg. Company, Clinton, Mich.; the Monessen plant of the Pittsburgh Steel Company; Ravine Mills Company, Vernon, Conn.; the Union Typewriter Company building, Syracuse, N. Y.; the Ansonia Brass & Copper Company building, Ansonia, Conn.; the Larkin Soap Company building, Buffalo, N. Y.; the E. Ingraham Company building, Bristol, Conn.; the Union Steam Pump Company building, Battle Creek, Mich.; the Cumberland Electric Light & Power Company power house, Nashville, Tenn.; the Lamb Knitting Machine Company, Chicopee Falls, Mass., and the Carter-Crume factory, Niagara Falls, N. Y.

Charles M. Schwab Resigns.

The resignation of Charles M. Schwab as president of the United States Steel Corporation was formally tendered at a meeting of the directors on Tuesday, and was accepted. The following official statement was issued:

"At the regular meeting of the directors of the United States Steel Corporation to-day, Mr. Schwab, in consequence of continued ill health, tendered his resignation as president, and it was accepted. W. E. Corey, who has been for some time performing the active duties of the president, was elected to the vacancy. The office of chairman of the Board of Directors was created, and E. H. Gary was elected to that position, and will continue



WILLIAM E. COREY.

to devote his entire time to the business of the corporation. An Advisory Committee, to consist of three directors besides the president, to consider and make recommendations concerning questions of manufacturing, transportation and operation, was created, and E. C. Converse, William Edenborn and D. G. Reid were elected as members of this committee. Mr. Schwab will continue to be a member of the Board of Directors and of the Finance Committee."

With this was issued the following statement by Henry C. Frick:

"Several months ago Mr. Schwab told me that he would very much like to be relieved from the presidency of the Steel Corporation on account of his continued ill health, and asked me to assist in so arranging. The matter was arranged entirely upon his request. Mr. Corey, who succeeds him, has been educated upon the same lines as Mr. Schwab, and has been his associate for 20 years. I am sure his election will give general satisfaction to all concerned."

Mr. Schwab states that for the present he will devote

himself to his health. He has leased offices on the fourth floor of 71 Broadway, New York, where he will make his headquarters upon his return to New York.

WILLIAM ELLIS COREY.

William Ellis Corey, whose portrait is herewith given, has been identified with the steel industry for over 20 years, and has been in the service of the Carnegie interests all of that time. He was born May 4, 1866, in Braddock, where his parents still reside. He attended the common schools until he had reached his sixteenth year, when he secured a position in the laboratory of the Edgar Thomson Steel Works. His commercial education was continued at the same time at Duff's College, Pittsburgh. He also studied chemistry at home, and mastered the theory and practice of metallurgy so thoroughly that when the responsibilities of management came with his appointment to official position he was in every respect qualified. From the Edgar Thomson laboratory he was



A. C. DINKEY.

transferred to one of the plate mills of the Homestead Steel Works, and subsequently to the order department of the Homestead plant. He was made superintendent of the plate mills at the age of 22, to which position the duties of open hearth department and slabbing mill superintendent were also added. His next advance was to the position of superintendent of the armor plate plant, which he filled until 1895, when he succeeded Charles M. Schwab as general superintendent of the Homestead Steel Works, embracing the direction of the Carrie Furnace plant when the Carnegie Steel Company secured that property, and the Howard Axle Works when it was established. While in control of the armor plate department Mr. Corey invented and improved the process for manufacturing armor, known to ordnance engineers as the Corey reforcing process. By this process the ballistic resistance of armor was greatly increased and the weight of plate to be carried by an armor-clad was considerably reduced, affording at the same time an equal degree of protection. On April 16, 1901, he succeeded Charles M. Schwab as president of the Carnegie Company and Carnegie Steel Company. On June 30 of this year his elevation to the presidency of the United States Steel Corporation was foreshadowed when he was appointed assistant to the president.

A. C. DINKEY.

Although the official announcement has not yet been made, it is stated on the highest authority that A. C. Dinkey will be elected the successor of W. E. Corey in the presidency of the Carnegie Steel Company. A portrait of Mr. Dinkey is presented herewith. Following is a brief biographical sketch: Alva C. Dinkey was born at Weatherly, Carbon County, Pa., in February, 1866. He was educated in the common schools there and at Braddock. He was employed as a telegrapher on the Baltimore & Ohio Railroad at Braddock at the age of 16, and in the same capacity at the Edgar Thomson Steel Works under Capt. W. R. Jones, afterward serving as a machinist at Pittsburg Locomotive Works for three years. He became associated with Thomas McTighe, Mr. McConnell and others in introducing electric light commercially in Pittsburgh, the first enterprise of that kind in Pittsburgh, antedating Westinghouse. One year was passed at that, and then he went to Homestead Steel Works office under Superintendent Potter. He left the office to take charge of the electrical department of the plant. He was first to introduce electricity for driving feed tables and revolutionized rolling mill practice, displacing hooks and tongs operated by hand labor. Four men were only required at rolls instead of 25. He effected a great reduction in labor cost, and put the Homestead mill far in advance of all others. The practice originated by him is followed now in every steel works and rolling mill in the world. He was first to introduce electric cranes in rolling mills. He assisted in the development of the electric charging machine and has patented one type of machine, also being patentee of the Dinkey controller in general use in steel works and rolling mills and a crane for soaking pits. In 1898 he was appointed assistant general superintendent of the Homestead Works, and succeeded William E. Corey as general superintendent in April, 1901.

As previously announced in *The Iron Age* the iron molders of Cincinnati have for several weeks past been agitating the question of an increase in pay for their day's work. This has at times assumed a very threatening attitude and a general strike was deemed probable. All has now been satisfactorily settled, and while the result is to some extent a compromise, still they have gained the main objects for which they contended. The manufacturers offered them a general increase of 20 cents per day for all not receiving the minimum amount, with working hours reduced from ten to nine hours. This was refused and a straight demand for 20 cents per day increase asked for, which, after a warm debate, was acceded to. This increase will affect nearly 1000 men in Cincinnati and suburbs.

Secretary Root issued an order to the Merchants' Bridge Company of St. Louis on August 4, requiring them to show cause within 30 days why the Government should not take possession of the great Merchants' Bridge across the Mississippi River. When a charter was granted for the construction of this bridge a provision was inserted to the effect that if ever the Merchants' Bridge came under the control of the owners of any other bridge across the river at St. Louis the charter should be forfeited and the bridge become the property of the United States.

The Easton Foundry & Machine Company of Easton, Pa., have offered to settle the strike of their employees by paying the scale of wages asked, providing the men sign an agreement to work at the wages agreed upon for a given period. This the men have refused to do, and the company are operating with nonunion molders. The strikers have been compelled by the sheriff to allow the nonunion workmen to enter and leave the mills unmolested.

The strike of the Phoenix Bridge Company's employees on the New Jersey Central Railroad bridge over the Lehigh River at Easton, Pa., has been called off, and the men returned to work on Monday, August 3, at increased wages. Labor troubles have delayed the building of this bridge over a year.

The Iron and Metal Trades.

There is some uncertainty in nearly all the branches of the Iron trade, induced by the feeling that consumption may decline during the balance of the year, while production shows from signs of adequate restriction. What has added to the uneasiness is the fact that occasionally demands are made by consumers for postponement of deliveries, and in some cases for cancellation. The condition of the money and security markets has put a serious damper on new undertakings, which it is very difficult to finance.

In the Pig Iron markets the principal event of the week has been the heavy buying of Western Malleable Iron interests, which consume about 150,000 tons of Pig Iron annually. For the second half the purchases include about 50,000 tons in the Chicago market at the price of about \$17.50 for Malleable Bessemer, and considerable additional quantities in the Cleveland market for Toledo and Indianapolis delivery. Other Malleable interests have also been buyers.

In ordinary Foundry Iron the principal transaction reported has been the purchase by a leading harvester interest of about 20,000 tons of Northern Iron in the Chicago district at \$17 for No. 2. No large sales of Southern Iron have taken place, and the situation is unchanged, with the leading interests steady at \$13.50 per No. 2 Foundry, Birmingham, while the open market is down to \$12, with large consumers offering somewhat less. A lot of 5000 tons of Virginia Iron has been sold to a leading consumer in the metropolitan district, at private terms.

In Bessemer Pig it is noted that two furnaces of the United States Steel Corporation—one at Youngstown and one at New Castle—are about to blow out, so that the requirements may become more urgent. A meeting of the Pig Iron committee is to be held early next week. Basic Pig in the East has sold at \$16, delivered. The lowering in the price of Pig Iron is causing a decline in Cast Iron Pipe.

It is pretty well understood that the leading Steel makers have determined to put a stop to importations of Steel Billets, and will meet such foreign prices as are made near tidewater or at interior points. Some negotiations are on foot for a lot of close to 10,000 tons of Billets on a conversion basis. Generally speaking, the market is quiet. The decline in Pig Iron and in Scrap has considerably reduced the cost of manufacture of Basic Open Hearth Billets, notably in the East.

In the heavy lines a fair tonnage is being placed, but so far as Plates and Shapes for car building are concerned, the future is uncertain because the steel car builders have not had any important new orders for a considerable time. Nor do the ship yards promise to be as heavy customers as they have been.

Slight concessions are being made in Sheets and in Terne Plates, while the Steel Bar mills have decided to guarantee prices against a decline.

Dullness reigns in all branches of the metal trade, and the general tendency is downward.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

	Aug. 5, 1903.	July 29, 1903.	July 8, 1903.	Aug. 6, 1902.
PIG IRON:				
Foundry Pig No. 2, Standard, Philadelphia	\$17.25	\$17.75	\$18.50	\$22.00
Foundry Pig No. 2, Southern, Cincinnati	15.25	15.25	16.25	20.25
Foundry Pig No. 2, Local, Chicago	17.25	17.25	18.00	22.00
Bessemer Pig, Pittsburgh	18.85	18.85	18.75	21.50
Gray Forge, Pittsburgh	16.15	16.50	18.50	20.50
Lake Superior Charcoal, Chicago	21.50	21.50	22.00	26.00

BILLETS, RAILS, &c.:

Steel Billets, Pittsburgh	27.00	27.00	28.50	31.25
Steel Billets, Philadelphia	28.25	28.25	29.00	28.75
Steel Billets, Chicago	28.00	28.00	29.50	31.00
Wire Rods, Pittsburgh	35.50	35.50	36.00	36.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL:

O. Steel Rails, Chicago	17.00	17.00	17.00	18.50
O. Steel Rails, Philadelphia	18.75	18.75	21.00	21.00
O. Iron Rails, Chicago	18.50	18.50	20.00	24.50
O. Iron Rails, Philadelphia	19.50	20.50	23.00	24.00
O. Car Wheels, Chicago	21.50	21.50	21.50	21.00
O. Car Wheels, Philadelphia	19.50	20.50	21.50	20.00
Heavy Steel Scrap, Pittsburgh	19.00	19.00	20.00	....
Heavy Steel Scrap, Chicago	15.50	15.50	16.50	18.50

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia	1.65	1.65	1.75	1.95
Common Iron Bars, Chicago	1.60	1.65	1.65	1.80
Common Iron Bars, Pittsburgh	1.65	1.65	1.65	1.80
Steel Bars, Tidewater	1.70	1.70	1.75	2.00
Steel Bars, Pittsburgh	1.60	1.60	1.60	1.60
Tank Plates, Tidewater	1.78	1.78	1.75	2.00
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.75
Beams, Tidewater	1.73½	1.73½	1.73½	2.35
Beams, Pittsburgh	1.60	1.60	1.60	2.00
Angles, Tidewater	1.73½	1.73½	1.73½	2.35
Angles, Pittsburgh	1.60	1.60	1.60	2.00
Skelp, Grooved Iron, Pittsburgh	1.85	1.85	1.90	2.10
Skelp, Sheared Iron, Pittsburgh	1.90	1.90	1.95	2.15
Sheets, No. 27, Pittsburgh	2.60	2.60	2.65	2.90
Barb Wire, f.o.b. Pittsburgh	2.60	2.60	2.60	2.90
Wire Nails, f.o.b. Pittsburgh	2.00	2.00	2.00	2.05
Cut Nails, f.o.b. Pittsburgh	2.15	2.15	2.15	2.05

METALS:

Copper, New York	13.00	13.00	14.00	11.60
Spelter, St. Louis	5.50	5.50	5.50	5.20
Lead, New York	4.12½	4.12½	4.12½	4.10
Lead, St. Louis	4.15	4.20	4.02½	3.97½
Tin, New York	28.25	28.60	27.15	27.87½
Antimony, Hallett, New York	6.00	6.00	6.62½	8.00
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.99	3.99	3.99	4.19

Chicago.

FISHER BUILDING, August 5, 1903.—(By Telegraph.)

The long delayed buying movement in Pig Iron has finally come. There has been purchased in this market during the past week or two from 80,000 to 90,000 tons of Pig Iron, most of it for shipment during the last half of the year. The one large order was for 50,000 tons of Malleable Iron placed by the National Malleable Iron Company, the largest consumers in this territory. The price is said to have been \$17.50, Chicago delivery. There has also been purchased within the past few days by the International Harvester Company 20,000 tons of Northern Foundry Iron on the basis of \$17 for No. 2 Foundry. Other smaller transactions make up the aggregate. This activity is somewhat notable from the fact that negotiations for Pig Iron had been generally supposed to have been directed mainly toward Southern Irons, and the large inquiry of the leading harvester interest for Southern Irons it was believed would be the gorge breaker. The activity, however, comes from the Northern products. Relatively the Steel markets have been unimportant. Buying of Steel Rails has been fairly good, another lot of 20,000 tons for 1904 delivery and a number of smaller deals for the current year swelling the total to close upon 30,000 tons for the week. There have been also smaller transactions in Billets, but here the tonnage which passed hands was limited by the small offerings of the leading producers. Structural Material has been mildly active. Iron Bars have shown some life. Plates are held back to an appreciable degree by the boiler makers' strike and Sheets are quiet because of the lately promulgated reports that the leading interests had reduced quotations \$1 per ton, a report which, as stated last week, was incorrect. There was better

buying of Cast Iron Pipe, following the decline in prices, and Wrought Pipe continues relatively active.

Pig Iron.—The heavy order for 50,000 tons of Malleable Pig Iron represents the consumptive needs of the buyer in this city for six months. There have been other transactions in Malleable Irons which foot up 5000 or 10,000 tons. This miscellaneous inquiry for Malleable Iron was stimulated to some degree last week by an inquiry for 5000 tons of Malleable Castings from the McCormick division of the International Harvester Company. The order is said to have been placed and Malleable foundries have within the past week been active inquirers for Iron, some of them buying and others still having their inquiries unsatisfied. The 50,000-ton lot of Malleable is said to have been closed at \$17.50, but the quotation that is commonly named is \$18 for that grade. There are now pending many large requirements, with prospects that buying will continue brisk during the next few days. Southern Irons have been, in comparison with this heavy buying, neglected. It is stated that the largest harvester company bought last week 5000 tons of Southern Iron, adding this to some previous smaller lots picked up, the policy being to take whatever lots of Iron might be found in the yards of the outside Southern furnaces. The association furnaces are quoting \$13.50, base, but there is with the smaller producers a trade as large as they care to assume at a scale of prices at least \$1 lower. In lots of from 200 to 500 tons several thousand tons of Southern Iron was sold at about \$12.50, Birmingham, for No. 2. Other sales include 300 tons of High Phosphorus No. 2 at \$12; 300 tons of No. 2 Northern at \$17; 300 tons of Malleable Bessemer at \$18, and 700 tons of No. 3 was offered at \$11.50. One fairly good transaction in Mottled and Gray Forge was closed at \$10.75, Birmingham. Silvery Irons have been active, 1100 tons of Ohio, ranging from 8 to 10 per cent., selling at \$20.50, at furnace, in lots of from 50 to 200 tons. Seven hundred tons of Southern Irons were sold at from \$12.50 to \$12.75, Birmingham, for No. 2 Foundry. The position of the Southern associated furnaces is uncertain. They are still gathering in a few small orders at their regular schedule of prices. It is said by one of the leading members that no meeting of the associated interests will be held during August. The market is considered to be in a critical condition, with every prospect that buying will be large during the next few weeks. Some of the Southern interests have expressed concern at the number of Northern furnaces which will become factors in this market during the next few months, and decisive action is looked for to meet these changing conditions. The following are the approximate prices, f.o.b. cars, Chicago, either for prompt shipment or for the third and fourth quarters of the year:

Lake Superior Charcoal.....	\$21.50 to \$22.50
Northern Coke Foundry, No. 1.....	17.75 to 18.25
Northern Coke Foundry, No. 2.....	17.25 to 17.75
Northern Coke Foundry, No. 3.....	16.75 to 17.25
Local Scotch, No. 1.....	19.00 to 19.50
Ohio Strong Softeners, No. 1.....	19.00 to 19.50
Ohio Strong Softeners, No. 2.....	18.50 to 19.00
Southern Silvery, according to Silicon.....	19.10 to 20.00
Southern Coke, No. 1.....	17.35 to 17.85
Southern Coke, No. 2.....	16.85 to 17.35
Southern Coke, No. 3.....	16.35 to 16.85
Southern Coke, No. 1 Soft.....	17.35 to 17.85
Southern Coke, No. 2 Soft.....	16.35 to 16.85
Foundry Forge.....	15.85 to 16.35
Southern Gray Forge.....	15.35 to 15.85
Southern Mottled.....	14.85 to 15.35
Southern Charcoal Softeners, according to Silicon.....	20.85 to 21.85
Alabama and Georgia Car Wheel.....	25.85 to 27.85
Malleable Bessemer.....	18.00 to 18.50
Standard Bessemer.....	18.25 to 18.75
Jackson County and Kentucky Silvery, 6 to 10 per cent. Silicon.....	20.80 to 22.80

Bars.—No additional large dealings in Steel Bars are reported but there are a number of inquiries which are prophetic of purchases in the near future if the market continues stable. The official figures are strictly observed, but one outside Eastern mill is quoting Soft Steel Bars in this market at 1.55c., Pittsburgh, or 1.71½c., Chicago, 5 cents below the circular. Iron Bars are in good request, several purchases having been made for deliveries running six months. There is also good buying by users for needs of 30 to 60 days. Iron Bars in lots of several hundred tons have sold at 1.60c., but carload business is usually done at 1.65c. The following are the official prices, f.o.b. cars, Chicago, mill shipment: Bar Iron, 1.60c. to 1.65c.; Soft Steel Bars, 1.76½c. to 1.86½c.; Hoops, 2.06½c. to 2.16½c.; Bessemer Bands, 1.76½c. to 1.86½c.; Angles, under 3 inches, 1.86½c. to 1.91½c., base. For merchant trade the market has remained steady at the following prices: Bar Iron, 2c. to 2.15c.; Soft Steel Bars, 2c. rates; Angles, under 3 inches, 2.10c. rates, and Hoops, 2.40c., base, from store.

Structural Material.—It is said that some unusually heavy work in bridge construction will be undertaken next year by Western railroad systems and that arrangements for the material are already under negotiation. This is the most favorable element of the present Structural trade. The inquiry for Shapes is very light for building purposes. There is quite a fair inquiry, but when it comes time for the prospective buyers to take action they withdraw and the

postponement seems to be indefinite. The market continues firm in tone, and store trade is taking on the same quiet tone of the mill situation. We quote as follows: Beams, Channels and Zees, 15 inches and under, 1.75c. to 1.90c.; 18 inches and over, 1.85c. to 2c.; Angles, 1.75c. to 1.90c. rates; Tees, 1.80c. to 1.90c.; Universal Plates, 2c. to 2.25c. From local stocks prices are nominally unchanged, as follows: Beams and Channels, 2¼c. to 2½c.; Angles, 2.25c. to 2.50c.; Tees, 2.30c. to 2.55c., at local yards.

Plates.—The mills are still busy on the larger specifications lately received. New commitments, however, are not important. The consumption in this territory has been disturbed by the boiler makers' strike, fully 65 per cent. of this trade now being idle pending an adjustment of labor demands. There is no change in the prices, which are as follows, f.o.b. cars, Chicago, mill shipment: Tank Steel, ¼-inch and heavier, 1.75c. to 2c.; Flange, 1.85c. to 2.15c.; Marine, 1.95c. to 2.10c. From local warehouses prices have remained steady, as follows: Steel, ¼-inch and heavier, 2.15c. to 2.20c.; Tank Steel, 3-16-inch, 2.25c. to 2.30c.; No. 8, 2.30c. to 2.40c.; Flange Steel, 2.40c. to 2.50c., all f.o.b. warehouse, Chicago.

Sheets.—There is a continuance of the recently developed easiness of prices, and this fact has served to diminish the inquiry. The more liberal offerings come from the smaller mills. There is a report that the Sheet mill at Waukesha, Wis., may resume operations, the report being based on an inquiry for Sheet Bars from that locality. Prices of Black Sheets, however, have remained unchanged, f.o.b. cars, Chicago, mill shipment, as follows: No. 10, 2.06½c. to 2.16½c.; No. 12, 2.16½c. to 2.26½c.; No. 14, 2.26½c. to 2.36½c.; No. 16, 2.36½c. to 2.46½c.; Nos. 18 and 20, 2.50½c. to 2.60½c.; Nos. 22 and 24, 2.60½c. to 2.70½c.; No. 26, 2.70½c. to 2.80½c.; No. 27, 2.80½c. to 2.90½c.; No. 28, 2.90½c. to 3.00½c. The demand for shipment from local stocks has been met at from 10c. to 15c. over mill prices. Galvanized Sheets have also been slow and easy at 75, 10 and 5 to 75, 10 and 7½ discount, mill shipments. Small lots from local stocks are sold on the basis of 75 and 5 to 75, 5 and 2½ discount.

Cast Iron Pipe.—Prices of Cast Iron Pipe are again reduced this week. The decline has stirred up quite a little business in a small way, many buyers who had been holding off purchasing at the new quotations. There is still a scarcity of large orders, though the aggregate tonnage marketed is considerably increased. The following are the quotations current, f.o.b. cars, Chicago: 4-inch, \$31; 6-inch and larger, \$30 for Water, and \$1 higher per ton for Gas Pipe.

Billets.—There is still a good inquiry for Billets, but the markets are made inactive on account of the comparatively small lots that are offered by the producing mills. The largest transaction reported for the week was 2000 tons of Bessemer at the regular newly established scale of \$28, Chicago. Open Hearth Billets are selling at a slight premium over the announced schedule, \$33 being the minimum for small lots of Forging Billets, and from that price up to \$38, according to quantity and delivery.

Merchant Pipe.—Conditions have not materially changed, the volume of trade being maintained remarkably well. There is an absence of buying by wind mill interests, but the regular jobbing interests are taking good quantities. For large sizes there is delay in promptly filling orders, especially for from 10 to 14 inches. Prices are firm at the regular schedule of discounts, which are as follows for carloads, Chicago, base, random lengths, mill shipment:

	Steel Pipe.		Guaranteed Wrought Iron	
	Black.	Galvd.	Black.	Galvd.
Per cent. Per cent. Per cent. Per cent.				
¼ to ¾ inch.....	66.35	56.35	63.35	53.35
¾ inch.....	68.35	58.35	65.35	55.35
¾ to 6 inch.....	73.35	63.35	70.35	60.35
7 to 12 inches.....	67.35	57.35	64.35	54.35

Less than carloads, 12½ per cent. advance.

Boiler Tubes.—Notwithstanding the restricted consumption of Tubes occasioned by the idleness of many plants, the mills are far behind in their shipments, from 10 to 14 weeks being required to make deliveries. Following is the schedule of discounts:

	Steel.	Iron.
1 to 1½ inches.....	40	35
1½ to 2½ inches.....	55.85	35.85
2½ to 5 inches.....	60.85	45.85
6 inches and larger.....	55.85	35.85

Less than carloads, 12½ per cent. advance.

The following is the schedule of discounts for shipment from local stocks:

	Steel.	Iron.
1 to 1½ inches.....	40	35
1½ to 2½ inches.....	50	32½
2½ to 5 inches.....	57½	42½
6 inches and larger.....	50	..

Merchant Steel.—Buying by the large agricultural interests has grown into a considerable tonnage within the past few days, and there are now under negotiations inquiries for an additional large tonnage. The consumers are

sometimes ordering for only six months instead of the usual year, though there are contracts being closed for the entire year. The market is firmly held at previous quotations, as follows: mill shipment: Smooth Finished Machinery Steel, 2.01½c. to 2.11½c.; Smooth Finished Tire, 1.96½c. to 2.11½c.; Open Hearth Spring Steel, 2.66½c. to 2.76½c.; Toe Calk, 2.31½c. to 2.46½c.; Sleigh Shoe, 1.86½c. to 1.96½c.; Cutter Shoe, 2.41½c. to 2.61½c. Ordinary grades of Crucible Tool Steel are quoted at 6c. to 8c. for mill shipment; Specials, 12c. upward. Cold Rolled Shafting in carload lots sells at 47 and in less than carload lots at 42 discount from list.

Rails and Track Supplies.—Both for this and next year's deliveries there has been a moderately active week. The largest transaction reported was an order for 20,000 tons, 1904 shipment. The aggregate business for this year's shipment was somewhat less, but for late fall delivery a number of orders were booked. Light Rails also are selling in small tonnage quite liberally, and Track Supplies of all kinds keep pace in point of activity with the Rail demand. Standard Sections are quoted \$28 and Seconds \$27, mill shipment. Light Rails are quoted at \$34 to \$38. Prices for Track Supplies are unchanged, as follows: Splice or Angle Bars, 2c. to 2.10c.; Spikes, 2.10c. to 2.15c.; Track Bolts, 3¼ to 3¾ inches and larger, with Square Nuts, 2.85c. to 2.90c.; with Hexagon Nuts, 3c. to 3.10c. From store 10c. to 15c. over mill prices are asked and obtained.

Old Material.—The railroads are the chief sellers this past week. It is not believed the country is without stocks, for at request they can be made to appear. Inquiry has been somewhat larger, and when the buyer asks for prices the latter assume a somewhat higher level. In general the market is still quiet, but increased sales are expected in several weeks by large interests. Rolling mill grades have been called for this week in larger amounts, and moderate tonnage of Cast Scrap has been marketed. The following are the prices current per gross ton, f.o.b. cars, Chicago:

Old Iron Rails.....	\$18.50 to \$19.00
Old Steel Rails, mixed lengths.....	17.00 to 17.50
Old Steel Rails, long lengths.....	19.00 to 19.50
Heavy Relaying Rails.....	29.00 to 31.00
Old Car Wheels.....	21.50 to 22.00
Heavy Melting Steel Scrap.....	15.50 to 16.50
Mixed Steel.....	13.00 to 14.00

The following quotations are per net ton:

Iron Fish Plates.....	\$15.75 to \$16.00
Iron Car Axles.....	20.00 to 20.50
Steel Car Axles.....	19.00 to 20.00
No. 1 Railroad Wrought.....	14.25 to 14.75
No. 2 Railroad Wrought.....	13.50 to 14.00
Shafting.....	16.50 to 17.50
No. 1 Dealers' Forge.....	13.00 to 14.00
No. 1 Bushing and Wrought Pipe.....	12.00 to 12.50
Iron Ax'e Turnings.....	11.00 to 11.50
Soft Steel Axle Turnings.....	11.00 to 11.50
Machine Shop Turnings.....	10.00 to 11.00
Cast Borings.....	6.50 to 7.50
Mixed Borings, &c.....	7.50 to 8.50
No. 1 Boilers, cut.....	12.00 to 13.00
Heavy Cast Scrap.....	14.50 to 15.00
Stove Plate and Light Cast Scrap.....	10.00 to 10.50
Railroad Malleable.....	15.00 to 15.50
Agricultural Malleable.....	14.00 to 14.50

Metals.—Copper continues heavy and there are further reductions to note this week. Casting has stood in carload lots at 12½c. and Lake at 13½c., consumers buying for only their nearby needs. Spelter has been moderately active at 5.50c. to 5.55c. in carload lots for early shipment. Sheet Zinc is steady at 6½c. Lead is in fairly good demand at unchanged quotations. Prices have continued nominal at Chicago on the basis of 4.05c. in 50-ton lots and 4.07½c. in carload lots. In Old Metals prices have been without change and are as follows: Heavy Cut Copper sells at 11½c., Red Brass at 10½c., Copper Bottoms at 10½c., Lead Pipe at 3.90c. and Zinc at 4.65c., spot.

Coke.—Buyers of Coke of any grade are still able to find what they require in the market, and usually at bargain prices. There is, in spite of the tendency for shippers to try and keep free Coke off the tracks in the West, a supply that is adequate to wants; but the supply from this source is probably shrinking. The demand is not heavy, for most users are now fairly well supplied with Coke for nearby wants. There is little change in quotations. Contracts are still being closed at \$3.50 for Connellsville Foundry, and good Furnace Coke can be bought at \$2, ovens.

Philadelphia.

FORREST BUILDING, August 4, 1903.

The unsettled condition of the Iron trade has been very much in evidence during the past two weeks, and it is feared that the end is not in sight yet. There are some features, however, which can hardly be reconciled. There is, for instance, an almost unprecedented falling off in the demand for material, yet in many lines there is no serious falling off in consumption. The natural and apparently the only explanation in regard to this matter is that consumers and dealers are running their stocks down to the closest limits possible, with the expectation of making a new start on new

lines. This they can most assuredly do, but whether the present basis of prices will be acceptable or not remains to be seen. The decline along the entire line has already been of considerable importance, but if the situation is to be examined critically it will be seen that prices are still very much higher than they were at the starting point, and something higher than the average of the past ten years, which includes a considerable period of abnormally high prices. The natural conclusion would therefore be that present prices, although not very profitable in many cases, and in some they may be unprofitable, yet an adjustment is not likely to be reached by a higher range of prices, but by decreased costs. The situation at present, however, is merely a tentative one, the question of values being more or less a matter of opinion, pending further developments; but, as already shown, present prices cannot be regarded as low, compared with those following other periods of abnormally high prices. The best judges admit the difficulties in sizing up the situation, and the action of buyers indicates similar uncertainty. The fact that there has been so little buying during the past three or four months leads to the belief that contracts must be pretty well run out, and that buying in the near future must be on a scale somewhat commensurate with consumption, which has not been the case during the past three or four months.

Pig Iron.—Prices are harder to quote to-day than at any time during the past ten years. The same grade of Iron may be quoted at a difference of \$1 to \$2 per ton, and an actual sale may show a still further discrepancy; consequently it is impossible to do more than give an outline of selling prices. The differences are in a measure due to the condition of order books, to opinions in regard to the ultimate course of the market and to the extent to which makers should go to protect their trade. These influences are of special importance when large transactions are involved, and they are varied enough to cause a considerable disparity in quotations. Small lots, however (and these comprise the majority of the orders) are placed at \$17.75 to \$18 for No. 2 X Foundry, and at \$17 to \$17.25 for 500-ton lots or larger, and to first-class buyers still lower prices are mentioned, but it is difficult to get confirmation, the general run of business being at about \$17.50. Mill Irons are quoted at \$16.50 to \$17 and higher for strictly first-class brands, but fair qualities are said to have been sold at \$16 to \$16.25. Large sales of Basic have been made during the past two weeks at extremely low figures, but the deliveries were somewhat extended and regarded as specially favorable to the selling interests. The range of prices for delivery in buyers' yards would be about as follows for medium to large sized lots:

No. 1 X Foundry.....	\$18.00 to \$18.50
No. 2 X Foundry.....	17.25 to 17.75
No. 2 Plain.....	16.50 to 17.00
Standard Mill Irons.....	16.50 to 17.00
Ordinary Mill Irons.....	16.00 to 16.25
Basic.....	16.25 to 16.50

Steel.—There is a great deal of inquiry for Steel, and small lots have been taken at \$28.75 to \$29, delivered, for Basic Open Hearth. Buyers bid \$28 for considerable quantities, but makers regard \$28, f.o.b. at mills (local), as low as they ought to go under present conditions.

Plates.—The demand is not urgent, but fair sized lots are taken, which, with back orders, keeps the mills pretty full of work. Prospects are not altogether encouraging, but it is still believed that some improvement will be met with in the near future. The following are base prices up to 100 inches: Tank Steel, both Sheared and Universal, 1.75c. to 1.80c., in large lots; Flange, 1.85c. to 1.90c.; Commercial Fire Box, 1.95c. to 2c.; Locomotive Fire Box, 2.25c. to 2.30c.; small lots, 10c. to 15c. per 100 extra; 100 to 110 inches, 0.05c. extra; 100 to 115 inches, 0.10c. extra; 115 to 120 inches, 0.15c. extra; 120 to 125 inches, 0.25c. extra; 125 to 130 inches, 0.50c. extra; over 130 inches wire, 1c. extra; Plates under ¼ inch on edge, 0.10c. extra; under 3-16 inch on edge to No. 8, 0.15c. extra; No. 9, B. W. G., 0.25c. extra.

Structural Material.—There is very little demand in this market, and from present appearances prospects are not encouraging. Mills are running moderately full, however, and for the time being it cannot be said that there is any real scarcity of work; but the labor situation is detrimental, and it is feared will stand in the way of any material improvement in the near future. Prices remain unchanged, as follows: Beams, Angles or Channels, ordinary sizes, 1.73½c. to 1.80c. for carload lots, with the usual addition for smaller quantities.

Bars.—The demand does not improve and the majority of the mills are on short time, and some running only a few days at a time, according as orders may be received. There is great irregularity in prices; some claim to be getting 1.65c., at mill, while others are said to be delivering Refined Iron at 1.60c. to 1.65c. Steel Bars are nominally 1.73½c. to 1.75c., based on Western quotations, but local mills are making prices more in proportion with those quoted for Bar Iron.

Sheets.—The local demand for Sheets is very fair and equals the output of the leading mills. There was a temporary suspension during last month for repairs, &c., but they are now getting to work, and have a considerable accumulation of orders to work on. Sales in liberal volume at unchanged prices.

Old Material.—Prices have suffered a sharp decline, but at the reduced figures there is more disposition to make purchases, although embargoes are too frequent for satisfactory conditions to either buyer or seller. Prices are about as follows for deliveries in buyers' yards:

Old Steel Rails.....	\$18.75 to \$19.00
Heavy Steel Scrap.....	18.00 to 18.50
Low Phosphorus Scrap.....	26.00 to 27.00
Old Steel Axles.....	20.00 to 21.00
Old Iron Rails.....	19.50 to 20.50
Old Iron Axles.....	21.50 to 22.50
Old Car Wheels.....	19.50 to 20.50
Choice Scrap, R. R. No. 1 Wrought.....	18.00 to 18.50
Country Scrap.....	16.50 to 17.00
Machinery Scrap.....	17.00 to 17.50
No. 2 Light Scrap.....	16.50 to 17.00
No. 2 Light (Ordinary).....	11.50 to 12.50
Wrought Turnings.....	13.00 to 14.00
Wrought Turnings, Choice Heavy.....	14.50 to 15.00
Cast Borings.....	8.50 to 9.00
Stove Plate.....	12.00 to 12.50

Geo. T. Johnson & Co., formerly Howe, Johnson & Co., 719 Drexel Building, Pig Iron, Iron and Steel, Coal and Coke, Billet, Slab and Rail merchants, have removed from the above address to Rooms 302-303 Pennsylvania Building, Fifteenth and Chestnut streets.

Cleveland.

CLEVELAND, OHIO, August 4, 1903.

Iron Ore.—There has been but little talk of further Ore sales, although it has become apparent that the contracts to date have not covered the year's supply of that material, based on the present rate of consumption. There is still some inquiry for further supplies of material, but the possibilities are that the contracts will not be closed until about September 1. The prices are still based on \$4.50 for Bessemer Old Range, and \$4 for Bessemer Mesaba. The rates of carriage remain unchanged—80c. from Duluth, 70c. from Marquette, and 60c. from Escanaba.

Pig Iron.—The call for Foundry Iron is not any heavier now than it has been for the past few weeks. There is still considerable uncertainty as to prices, with the impression gaining ground that they will have to go lower before any further contracts are made. The Valley furnaces are not trying to force contract business, fearing that they would break the market by urging buying just now. They have a good run of orders that is taking up all of the material produced. Besides, many of them are still running on contracts taken at the higher prices recently prevailing. The Valley furnaces are now quoting \$17.50 in the Valley for material, and the Southern Ohio furnaces are getting approximately the same price. Considerable attention is being paid to the Southern situation as bearing directly upon the local market. The frequent disturbing rumors that are coming from the Southern territory of cuts to a \$12 basis, Birmingham, are practically preventing any contract sales here. Gray Forge is selling in the Valleys at \$17 to \$17.50, and Malleable is in demand at \$18 as a minimum. The Cleveland Furnace Company's new stack on the Cuyahoga River will be blown in this week and will produce 350 tons daily of Bessemer, which has been sold up for almost the entire year. The new production has not softened the market appreciably. The price still holds nominally at \$18.50, Valley furnace.

Finished Iron and Steel.—The Bar situation is causing some uneasiness in this territory, and repeated efforts are being made to break the association prices. The consumers of Bars have made a strong demand upon the producers for a reduction, following the lowering of the price of Billets. The claim is that the present price of Billets and the present price of Steel Bars give the Steel mills too great a price for the conversion of Billets into Bars, and do not give the Bar consumers the same advantage in the open market with the Bar consumers who have their own mills for the conversion of the Billets. This discrepancy is practically preventing any Bar sales at the present time. The mills, however, are holding rigidly to their old prices of 1.60c., Pittsburgh, for Bessemer, and 1.70c., Pittsburgh, for Open Hearth. The Bar Iron situation is intangible. Local conditions are being met in every quarter and the prices have a wide range. In this territory the price runs about 1.60c. to 1.65c., Cleveland. In the Sheet trade the buying has been steady and there has been a good run of orders. The buying has been hand-to-mouth, nevertheless, and the market uneven. There have been persistent rumors of cuts in prices, but so far these seem to be without foundation, the mills not believing that further business would be created by a reduction at this time. The business through jobbers has been fair. Former prices are quoted without variation as follows: No. 27 Black Sheets out of stock, 3.05c. as a basis for all

gauges; No. 14, blue annealed in carload lots at the mill, 2.20c.; No. 27, one pass cold rolled in car lots at the mills, 3.75c.; No. 27, Galvanized Sheets out of stock, 4c. as a basis. The Plate trade is dull with but very little being done. Contract booking is light, and what selling has been engaged in has been at old prices but in small lots. The Structural trade is also light, with only small orders being placed either with the larger or the smaller mills.

Old Material.—The first inquiry for Scrap for weeks was a demand for Cast, which the jobbers hope to sell at \$15. The buyers have not been jumping at the material at that price. The market otherwise is still listless, the mills continuing to use the stocks collected during the period of suspended operation. We continue to quote, nominally, all gross tons: Heavy Melting Steel, \$19.50; Old Steel Rails, \$20.50; Old Iron Rails, \$22; Car Wheels, \$20; Railroad Malleable, \$17; Cast Borings, \$8.50. All net tons: No. 1 Railroad Wrought, \$18.50; No. 1 Bushelling, \$15; Wrought Turnings, \$12; Iron Axles, \$24; Cast Scrap, \$15; Stove Plate, \$12.

Cincinnati.

FIFTH AND MAIN STS., August 5, 1903.—(By Telegraph.)

The Pig Iron situation has not been materially altered by the events of the past week. The market for Southern stock is openly on the basis of \$12 for No. 2 Foundry, f.o.b. Birmingham—that is, openly so far as the outside furnaces are concerned. The association furnaces are not reported as selling below their recognized basis of \$13.50. It appears that a number of agents representing the associated furnaces are encouraging buyers to submit propositions on the basis of \$12, with the expectation of having their furnaces accept the offers. In this way a strong pressure is being brought to bear upon the market. Buyers in some instances are claiming to have offers on as low a basis as \$11.50 and even lower, but their claims are generally rejected by selling agents as untrue. Freight rates from the Hanging Rock district, \$1.50, and from Birmingham to Ohio River points, \$3.25. We quote, f.o.b. Cincinnati, for delivery throughout the year, as follows:

Southern Coke, No. 1.....	\$15.75 to \$17.25
Southern Coke, No. 2.....	15.25 to 16.75
Southern Coke, No. 3.....	14.75 to 15.25
Southern Coke, No. 4.....	14.25 to 15.75
Southern Coke, No. 1 Soft.....	15.75 to 17.25
Southern Coke, No. 2 Soft.....	15.25 to 16.75
Southern Coke, Gray Forge.....	14.25 to 15.50
Southern Coke, Mottled.....	14.00 to 15.50
Ohio Silvery, No. 1.....	21.15 to 21.65
Lake Superior Coke, No. 1.....	17.65 to 18.15
Lake Superior Coke, No. 2.....	17.15 to 17.65
Lake Superior Coke, No. 3.....	16.65 to 17.15

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$26.25 to \$28.50
Lake Superior Car Wheel and Malleable	23.50 to 24.00

St. Louis.

CHEMICAL BUILDING, August 5, 1903.—(By Telegraph.)

Pig Iron.—Pig Iron conditions at this point have undergone no change for betterment and an exceedingly dull state of affairs is the general report. We hear quotations of No. 2 Foundry Iron as low as \$12, Birmingham, and even this price does not seem to tempt any important volume of buying. Current inquiry is also said to be very small, and consumers seem to be content to sit still and wait future developments of the Iron situation. It is said that some of the larger furnaces are not particularly anxious at this time to make quotations for future delivery. We quote, f.o.b. St. Louis, as follows:

Southern, No. 1 Foundry.....	\$16.75 to \$17.50
Southern, No. 2 Foundry.....	16.25 to 17.00
Southern, No. 3 Foundry.....	15.75 to 16.50
Southern, No. 4 Foundry.....	15.25 to 16.00
No. 1 Soft.....	16.75 to 17.50
No. 2 Soft.....	16.25 to 17.00
Gray Forge.....	15.25 to 16.00
Southern Car Wheel.....	26.75 to 27.00
Malleable Bessemer.....	19.25 to 19.75
Ohio Silvery, 8 per cent. Silicon.....	23.00 to 23.50
Ohio Strong Softeners, No. 1.....	19.25 to 19.75
Ohio Strong Softeners, No. 2.....	18.75 to 19.25

Bars.—Conditions governing the Bar Iron situation show little change and sales are moderate in volume. The reports from the jobbers point to a fair volume of store trade. Owing to a typographical error in last week's report an absurdly low price was quoted for Steel Bars. We quote from the mill: Iron Bars, 1.70c. to 1.75c.; Steel Bars, 1.82½c. to 1.90c. Jobbers continue to quote 2.15c. to 2.25c.

Rails and Track Supplies.—This department of the market continues very firm and steady, both in regard to condition of demand and price. The volume of inquiry is satisfactory. We quote as follows: Splice Bars, 2.05c. to 2.15c.; Bolts, with Hexagon Nuts, 3.05c. to 3.15c.; Bolts, with Square Nuts, 2.90c. to 3.00c.; Spikes, 2.15c. to 2.25c.

Angles and Channels.—Jobbers are doing a fair amount of store trade and quotations are as before—2.25c. to 2.40c. for this class of material.

Pig Lead.—The demand is less urgent, and as offerings have increased somewhat prices are lower. We quote: 4.15c. to 4.17½c. for Missouri brands.

Spelter.—No pronounced change has come in the Spelter situation and general firmness is the rule, the prevailing quotation being 5.50c.

Pittsburgh.

PARK BUILDING, August 5, 1903.—(By Telegraph.)

Pig Iron.—There is a better tone to the Pig Iron market this week. Several lots of Bessemer from Valley and other furnaces which had been pressing in the market having been absorbed, the Bessemer Pig situation is now much steadier. So far this month between 10,000 and 15,000 tons of Bessemer have been sold to foundries and Acid Open Hearth Steel works at \$18, Valley, or \$18.85, Pittsburgh. For any delivery before the last two months of the year the lowest price possible is \$18, Valley; for deliveries running into next year \$17.50 has been quoted in one case. It is an open question what will be done by the Steel Corporation Pig Iron Committee at the meeting on next Tuesday. Possibly some additional third-quarter Iron will be bought, and perhaps also inquiry will be made for fourth-quarter Iron. After practically no business in Northern Forge for nearly two months an inquiry for 2000 tons, August shipment, for local consumption, has appeared and has led to very active bidding, ranging from \$17 down to \$16.15, Pittsburgh. The buyer's idea is \$16, Pittsburgh. The movement in Northern Foundry Iron has been slightly larger than last week, but sales are still confined to small lots for early shipment. The settlement of the molders' wage matter last week has had a favorable influence, and inquiries are now for larger quantities and more extended delivery than formerly. On a fair sized lot \$17.50, Pittsburgh, can be shaded slightly for Northern No. 2, and we note quotations of \$17, delivered to Shenango Valley points.

Billets.—We are advised that the Billet agreement is working smoothly, and that no sales have been made at under the agreed prices. All sales and inquiries are reported at meetings three times a week in the office of Commissioner W. H. Vilas in New York, who in turn reports them to the different mills. Sales have been light, being mainly lots of 500 to 200 tons. Inquiry, however, is larger this week than in any previous week. The Ashland Steel Company are in receipt of many inquiries, as they are the only mill of consequence not in the agreement. On German Basic Billets about \$28, delivered, Pittsburgh, can be done without figuring agents' profits, Open Hearth being about \$1 per ton higher.

(By Mail.)

The slight improvement noted last week in the local situation has continued this week with added force. Inquiry for Forge Pig has appeared after a practically complete cessation of buying for nearly two months; sales of Foundry Iron are slightly heavier, with good inquiry, and Bessemer Pig is slightly firmer. The Pig Iron Committee of the United States Steel Corporation will meet next Monday, the 10th, to consider buying more Pig Iron. It is probable that a small tonnage of August-September Iron will be taken and perhaps a block of fourth quarter Iron. At a meeting at the Union Club, in the Frick Building, last Thursday, the Merchant Steel Bar mills officially decided to hereafter guarantee prices against a decline, the guarantee to cover all material contracted but not specified for. This is only a nominal concession, since without the specific guarantee no mill would force a customer to take material on contract he did not want, for fear it would be resold at a cut price; yet the action has had a favorable effect on the market, and the tonnage booked in Steel Bars the past few days has shown a decided improvement. The large harvester interest is still dickering, mills having absolutely refused to make any concessions. Beams continue rather slow, as the setback given by various labor troubles has been an irreparable loss, much work being deferred to next year. The different steel mills in this district advise that in no case has any Steel been sold below the official schedule of prices since it was formulated a little over two weeks ago. No large tonnage has been placed in the past week with the mills, but a number of lots running from 500 to 2000 tons have been sold. Inquiry this week has shown a marked improvement, and larger sales are expected as consumers begin to have confidence in the arrangement. There is some figuring on conversion contracts, and on an inquiry for some 10,000 tons of 4 x 4 Bessemer Billets the mills have named a spread equal to \$9 between Pig Iron delivered and Billets, f.o.b. mill, a basis on which it is rather doubtful if any business can be done.

Plates.—There is a slight increase in tonnage on new orders, with fair specifying against contracts, and the market is in fairly good shape. We quote: Tank Plate, ¼-inch thick and up to 100 inches in width, 1.60c., at mill, Pittsburgh; Flange and Boiler Steel, 1.70c.; Marine, Ordinary Fire Box, American Boiler Manufacturers' Association specifications, 1.80c.; Still Bottom Steel, 1.90c.; Locomotive

Fire Box, not less than 2.10c., and it ranges in price up to 3c. Plates more than 100 inches wide, 5c. extra per 100 lbs. Plates 3-16 inch in thickness, \$2 extra; gauges Nos. 7 and 8, \$3 extra; No. 9, \$5 extra. These quotations are based on carload lots, with 5c. extra for less than carload lots; terms net cash in 30 days.

Steel Rails.—Standard Rails are quiet just now. Light Rails have had a steady decline, owing partly to lower prices for old rails, but mainly to the fact that steel mills now have more steel, and are rolling light rails out of new stock. We quote at \$28 at mill for Standard Sections.

Structural Material.—There is very little doing in the way of large contracts, but there is an excellent run of small business. Some of the mills advise us that this small business really foots up a greater tonnage in the aggregate than the contracts for large buildings, which take into the thousands of tons apiece. We quote: Beams and Channels, up to 15-inch, 1.60c.; over 15-inch, 1.70c.; Angles, 3 x 2 up to 6 x 6, 1.60c.; Zees, 1.60c.; Tees, 1.60c.; Steel Bars, 1.60c., half extras, at mill; Universal and Sheared Plates, 1.60c. to 1.70c.

Ferro-Manganese.—Imported ferro is not especially strong, and while English 80 per cent. is quoted at \$49 in large lots a firm offer would shade this.

Muck Bar.—This line continues extremely quiet, as consumers are not ready to buy with the Forge Pig and Scrap markets in their present shape. Nominally, \$30, delivered Pittsburgh, is quoted, but on a firm offer this could be shaded.

Iron and Steel Bars.—The large harvester interest are still negotiating for the tonnage of Steel Bars which they will need outside of the production of their own mill, expecting to break the regular price, but the mills have adhered to the agreement. There is considerable question as to how much tonnage this interest will require. There is a decidedly larger tonnage of orders for Steel Bars being placed, since the mills last Thursday agreed to guarantee prices against a decline, although, as noted, this was merely a nominal concession. The situation is mixed in Iron Bars, as the matter of quality and reputation of maker seems to have much to do with prices. On ordinary quality we quote 1.65c., Pittsburgh, but would note that mills east of here are reported as quoting as low as 1.55c., at mill, or a shade under 1.65c. for actual Pittsburgh delivery. We quote Steel Bars at 1.60c., Pittsburgh, in carloads and larger lots. For quantities less than 2000 lbs., but not less than 1000 lbs., \$2 a ton additional is charged, and less than 1000 lbs., \$3 additional.

Tin Plate.—Premiums are disappearing in the Tin Plate trade, as the canning season, owing to weather conditions, is being spread over an unusually long period, giving the mills more time to supply the demand. All the mills are extremely busy, and the independent mills are doing much better, now that they can get the Steel. On small lots for guaranteed prompt shipment premiums of from 5c. to 15c. a box are being obtained, but most business is going at the base price of \$3.80 for 100-lb. Coke Plates, f.o.b. mill, Pittsburgh district.

Sheets.—The jobbing trade for the month of July was decidedly satisfactory and continues so, although no large contracts are being placed with mills, as buyers prefer to buy as they need. The official prices remain at 2.75c. for Black and 3.85c. for Galvanized, 28-gauge, in 500-bundle and larger lots. It is understood that the leading interest have been making concessions of 5c. per 100 on both Black and Galvanized to their best customers, to enable them to meet the competition of independent mills, who are quoting as low as 2.70c. for Black and 75, 10 and 2½ for Galvanized. On a nice order for Galvanized as low as 3.75c., net, might be done on Galvanized with independent mills. Jobbers charge the usual advances for small lots from store.

Hoops and Bands.—This line is decidedly slow, there being very little new tonnage, and prices are not as firm as they might be. We quote: Cotton Ties, 87c. in 10,000-bundle lots or over; 92c. for carloads; Steel Hoops, 1.90c. in 250-ton lots and 2c. for carloads; Bessemer Bands, 1.60c. to 1.70c. for Open Hearth. Extras as per Steel card.

Rods.—Rods are fairly firm, as the mills have no incentive to cut the prices, as this would bring out very little business. Sales are light. We quote Bessemer Rods at \$35.50, Open Hearth at \$36 to \$36.25, and Chain Rods at \$38, f.o.b. Pittsburgh.

Skelp.—There is very little doing in Skelp, and while prices are quoted nominally at 1.85c. for Grooved, either Iron or Steel, and 1.90c. for Sheared, f.o.b. Pittsburgh, a desirable order would probably bring out slightly lower quotations.

Pipes and Tubes.—Merchant Pipe continues to be the strongest thing on the list. There has been a good tonnage booked the past few days, and mills have a good run of bona fide orders for several months ahead, and in the large sizes clear to the end of the year. Prices continue

very firm, discounts to consumers in carloads being as follows:

	Merchant Pipe.			
	Steel. Black. Per cent.	Galv. Per cent.	Wrought Iron. Black. Per cent.	Galv. Per cent.
1/4, 1/2 and 3/4 inch.....	68	58	65	55
1/2 inch.....	70	60	67	57
3/4 to 6 inches.....	75	65	72	62
7 to 12 inches.....	69	59	66	56
Merchant Boiler Tubes.				
			Steel.	Iron.
1 to 1 1/2 inches.....			42 1/2	39
1 1/2 to 2 1/4 inches.....			53 1/2	38
2 1/4 to 5 inches.....			61	48
6 to 13 inches.....			55 1/2	38

The outside mills rolling Iron Pipe are naming lower discounts than are given above.

Iron and Steel Scrap.—The Scrap trade has not yet gotten down to business, and the only thing doing is the offering of various odd lots which have to be sold. Consumers are not making any inquiries. Heavy melting stock is offered at \$14.00 and No. 1 Wrought at \$17.50, the latter in net tons. Some odd lots of Cast Borings are offered at \$9 or less. Old Iron Rails are offered at \$22.50, Valley delivery. Cast Scrap is about \$16.50 and Sheet Scrap is offered as low as \$15.

The offices of the Pittsburgh Tool Steel Wire Company, manufacturers of Monaca Drill Rods, Needle Wire, &c., have been removed from 317 House Building, Pittsburgh, to the works at Monaca, Pa. This concern report a very large demand for their specialties.

German Iron Market.

ESSEN, July 20, 1903.

The condition of the German Iron and Steel market has strengthened materially since our last report, and this has taken place in spite of the news adverse to a continuance of exports to America which have for many months taken a considerable proportion of the surplus production of Germany. Our manufacturers are even going so far as to prepare for the appearance of the United States as a competitor in the neutral markets. The fact that the feeling is a confident one in spite of this may be regarded as a proof of the healthier condition of the financial affairs in Germany generally.

So far as the individual branches of the Iron trade are concerned we may report that the German Iron mines are very well employed, so that the Siegen Iron Ore Syndicate have been able in the last few days to suspend entirely the restriction of production of 25 per cent. which was still in force. Since July 1 the syndicate price for raw Spathic Ore has been increased by 0.50 mark and for calcined Spathic Ore by 1 mark per ton. In the next few weeks the prices for the fourth quarter will be settled, but it is confidently reported that a further rise in prices will not take place. The Luxemburg-Lorraine minette output is disposed of to the end of the year at unchanged prices. The Pig Iron business continues very active, even for home consumption, and cutting has stopped since the two largest outsiders, the Georgs Marien Verein of Osnabrueck, and the Kraft Works at Stettin, have made arrangements with the Syndicate. Prices last reported still prevail. Spiegel with 10 to 12 per cent. Manganese, 67 marks; Mill Iron, 50 marks, f.o.b. Siegen; German Bessemer Pig, 67.50 marks; No. 1 Foundry, 66.50 marks; No. 3 Foundry, 64.50; Hematite, 67.50 marks, f.o.b. furnace; ordinary Thomas Pig, 57.40 marks, delivered at Steel works; Luxemburg Forge Pig, 45.60 to 46.40; Luxemburg Foundry, 52 marks, f.o.b. Luxemburg.

A very considerable export business is still being done in Steel Billets. More than 100,000 tons have been booked for English and American buyers, and there are some further large lots on the market at this time. Besides this, the home consumption has been increasing to such an extent that the Steel works are engaged fully for the next three or four months. Home prices are unchanged. We quote: Ingots and Heavy Blooms, 77.50 marks; Blooms and Heavy Billets, 82.50 marks; ordinary sizes of Billets, 50 mm. square, 90 marks; Slabs, 92.50 marks, all per ton, f.o.b. Dortmund, Oberhausen, Rothe, Erde or Diedenhofen. For Open Hearth quality an extra of 5 marks is charged. Very little has been done in Muck Bars, ordinary Bars, Westphalian brands, being quoted 79 to 80 marks, f.o.b. puddle mill. Best Siegen brands, 94 to 96 marks.

There has been a fair demand for Steel Angles, as well as for ordinary Steel Bars, but prices are still unprofitable for those smaller establishments who do not make their own Steel. We quote for Steel Bars and Light Shapes: Basic Bessemer Steel, 110 marks; Open Hearth Steel, 115 marks.

The Plate market has been without any animation since our last report, the export trade being less active and the home consumption without much demand. Prices remain without change, the following being the official base of the Plate syndicate: Ordinary Tank Plate, 120 to 125

marks; Boiler Plate, 150 marks. A fair amount has been placed in the Sheet market during the past few weeks, but now very little is being done and the mills of the syndicate cannot run to full capacity. The standard price for home consumption is still 137.50 marks, but it is stated that export business has been done down to about 105 marks, f.o.b. Sheet mill.

There is and there has been during the past few weeks a fair inquiry for Rolled Tubes, the stock having been reduced considerably, so that the mills have been forced to add to the number of men. Prices remain unchanged. The situation in the Structural market is sound, most of the works being filled up for several months to come, while a few are still in want of work.

A moderate volume of orders is being placed in Rails, Steel Sleepers, Tires, &c., both for the home and for the foreign trades. The Prussian State Railways during the past few days ordered 538 passenger cars, 3920 freight cars and about 200 locomotives.

Belgian Iron Market.

BRUSSELS, July 20, 1903.

The Belgian rolling mill men have at last understood that they could not continue to live unless they reduced their cost of production. Labor is not abundant and there is a good deal of hesitation about lowering wages for fear of trouble and that serious consequences may grow out of a general strike. What is killing out metallurgical industry is the relatively high cost of coal, which checks its development, this being due to lack of co-operation among the mills. The result is that finally our Iron masters have decided to draw upon other countries for their Coal rather than submit longer to the demands of the home collieries, which are syndicated. In this manner they will exert a pressure on the Belgian fuel supply, and it looks as though they will sooner or later obtain the concessions so urgently demanded and so necessary.

In order to check the competition among themselves the rolling mills are actively debating the question of creating a single sales bureau. Next week there will be a meeting to take the necessary steps to determine the preliminary basis of the new organization. It is feared, however, that the majority of the works will be represented by men without power, and that the results of this meeting will be rather negative, the majority of the principal men being off on their vacation, so that the occasion is not a favorable one for final decisions of this character. However, it is certain that the matter will ripen and that in October next the negotiations will be taken up ardently. It is in this month that generally the meetings of our Iron and Steel companies take place, and the managers will have to avow this to their stockholders—that Belgium is occupying a position of marked inferiority as compared with Germany, and that it will be necessary to unite and co-operate in order to obtain results.

So far as the markets are concerned, we can only note their great weakness, with the exception of Pig Iron, which continues firm at 58 francs for Mill Iron, 62 francs for Foundry Iron and 63 francs for Thomas Pig. The number of furnaces in blast on July 15 was 34, 13 of them in the Charleroi region, 15 in the Liege district and six in Belgian Luxemburg. Eight of these furnaces had a capacity of 754 tons per day of Mill Iron, three a capacity of 195 tons of Foundry Iron and 22 a capacity of 2555 tons of Iron for Steel manufacture.

The half products are lower in price, and Old Material has been declining, as the result of absence of orders for rolled products. In the Finished Iron markets no favorable reports can be made. Still, we are now at a period of the year when business generally is quiet. Our rolling mills have specifications coming in rapidly enough to permit fairly regular work. Certain middlemen hold back orders which they have in hand, and decide to place them only at the very last moment. They generally find quite readily works which, being short of employment, must meet their requirements. Usually the impression is that the sacrifice demanded, if not made by one particular mill, will probably be consented to by a competing concern, and as a result the offers are accepted. This has the effect of destroying confidence among buyers, and leads to the holding up of all important orders. The following quotations are made: Beams for export, £4 9s. to £4 10s.; No. 2 Bars, £5 1s. to £5 2s.; Steel Bars, £5 2s. to £5 3s.

The Rail market is very active. Cockerill has obtained an order for 6000 tons for Denmark, and only missed by a narrow margin an order for 5000 tons of Rails for Portugal which was taken by the Rheinische Stahlwerke at 100 marks, c.i.f. Lisbon.

The Wire trade continues to complain of an unsatisfactory condition of affairs. In September or October four new mills will begin the manufacture of Wire Rails with a monthly production of about 10,000 tons. Two of them, the Burbacher Huette and Roebling, will probably enter the German syndicate. The other two, however, the Differdange Company and the Micheville Steel works, in eastern

France, both of them being at our very doors, threaten to inundate us with their products.

In Wire Nails the prices are maintained owing to the operation of the syndicate, whose figures have been readily accepted by buyers at home. For export the orders are scarce, and it is even questioned of reducing production 20 to 30 per cent.

The Bolt works have very little work ahead and are working slowly, some of them beginning to complain of the hardness of the times. The car shops are facing the future with confidence because they have orders enough to keep well employed, even if the prices obtained are not always brilliant.

Birmingham.

BIRMINGHAM, ALA., August 3, 1903.

It looks as though a gradually growing better feeling was developing in the Iron market, though as yet there is no activity in it; but the number of orders the past week increased, as did also their volume. As has been the case heretofore, they were all for immediate and nearby delivery. There are rumors of recession in prices, but they are taken *cum grano salis* here. The market here is quoted from other places as being on the basis of \$12 to \$12.50 for No. 2 Foundry, while your correspondent knows that that price was bid for No. 4 Foundry and refused. He also knows that a large Eastern interest bid \$13 for 11,000 tons of No. 2 Soft and met with a declination, the price demanded being greater. He also knows that full association prices have been paid by some who are credited with selling for less value. The parties most interested in these reports strenuously deny their correctness, and they cannot be verified here. Instances where better prices have been declined are of such frequent occurrence that it taxes credulity to believe that in this district the prices quoted really prevail. If they did there would be no necessity for well posted buyers bidding higher values, nor would such bids be declined. Local interests here having the advantage that is derived from being on the ground and in close personal contact with the sellers, have failed to obtain prices at less than association values and have paid them after persistent but vain efforts to shade them. The market quotations, then, as based on actual transactions, can only be given as at association prices, or on a basis of \$13.50 for No. 3 Foundry. Production of Pig Iron has, of course, been affected by the strike, but there will be speedy improvement in that respect, as the miners have gone to work and prompt assembling of material will be assured.

The acceptance by Judge Gray of the position of fifth arbitrator in the differences between the operators and the Coal miners has been received with much satisfaction here. Each side has commenced the preparation of its case, so that when presented unnecessary delays may be avoided; and the wish is most ardently expressed that the settlement of Judge Gray may be so sweeping that these yearly contentions will be obliterated. Rumors continue in circulation to the effect that the Association of Southern Furnaces has been disrupted. Again is it denied, and the report characterized as an attempt to reduce values.

The rolling mills will start up again on the 5th inst., after a season of an unusually long shut down. They will run with full force.

Interest is being revived in the Warrior Canal, and a company has been incorporated by several prominent citizens, under the title of the Warrior Navigation Company, to further the project and command consideration. They are capitalized at \$50,000. The plan is feasible, and it is simply a question of time when a water way will be established from the Tennessee River to the Gulf of Mexico at Mobile. The advantage that would accrue to this district would be very great; but it takes time to concentrate public effort or to arouse public enthusiasm, and the Warrior Canal may be in *statu quo* for years, but it will be eventually a realized dream.

There were a few companies incorporated the past week, but they were of no significance. Everybody has been awaiting the outcome of the miners' action. When they are idle the wheels of progress are clogged.

Work has finally commenced on the great sanitary sewer, for which \$100,000 of bonds were sold. As soon as this section is well under way a further sale of bonds will be made to furnish "the sinews of war" for continuing the work until completed. The section now under contract covers 6000 feet.

Although labor of all kinds is in great demand here, labor agents from other districts are active and successful in inducing desertions for fresh pastures. It is a difficult matter to retain our negro labor when it is tempted by a long ride and the view of a new country. The railroads being built have absorbed a good deal of the labor that the Iron industries counted on, and it is a difficult matter to replace it. In all lines of labor here, both skilled and ordinary, there is a call to fill vacancies, and labor agents are invading fields wherever prospects tempt to effort, but success is only limited.

The report on the preliminary survey of the contemplated railroad from this city to Huntsville is very favorable, and there is but little question as to its being built. Prospecting in the mineral field still continues, but there have been no changes in ownership of late. Some time ago these letters mentioned the Coal and Iron properties of W. P. Pinckard, situated below Bessemer. Since then, under circumstances that would have discouraged and driven from the field less hopeful and resolute spirits, he has been persistent in delving and developing the property, until success is crowning his efforts by the location of a 6 to 9 foot vein of Soft Red Ore, carrying a materially higher metallic percentage than usually prevails. This settles the value of the property beyond all question, and demonstrates the fact that all the Soft Red Ore has not been exhausted. It has been in light supply for some time and threatened to grow in scarcity, but this new "find" will encourage investigation on the part of others, and it is not improbable that success will reward the efforts of others laboring in this field of development. Expert after expert, investor after investor, examined the Pinckard property, only to find nothing in it to invite enterprise. They turned it down; but faith located the deposits, and the diamond drill confirmed faith by revealing them when put to the test.

New York.

NEW YORK, August 5, 1903.

Pig Iron.—One of the leading consumers in this district has bought about 5000 tons of Foundry Iron, chiefly Virginia, but otherwise the market has been quiet and unchanged. We quote for tidewater delivery: No. 2 X Foundry, \$16.50 to \$17; No. 2 Plain Foundry, \$16 to \$16.50; Gray Forge, \$15.50 to \$16; Basic, \$16 to \$16.50. Tennessee and Alabama brands: \$16.75 to \$17 for No. 1, \$16.25 to \$16.75 for No. 2, and \$15.75 to \$16.25 for No. 3.

Cast Iron Pipe.—The city of New York during the coming week will open bids on about 7000 net tons of 6 to 24 inch Pipe and special castings. This is the largest letting at present in sight. A very good demand for small lots is still experienced, the quantities called for running from carloads to 500 tons. The steady stream of business of this character keeps the Eastern foundries well supplied with work. Quotations on carload lots continue at \$34 per gross ton, at tidewater, and 12-inch upward at \$33, but in some instances these prices have been shaded.

Steel Rails.—Comparatively few new sales are reported, either for early delivery or for 1904. We quote Standard Rails \$28 and Light Rails \$35 to \$36, at Eastern mill.

Finished Iron and Steel.—The American Bridge Company report the month of July as having run up a much heavier tonnage than had been expected. Among the orders placed the past week was one for 3500 tons for a grand stand for a racing association on Long Island. Several railroad contracts for smaller quantities were secured. They have also taken a few highway bridges in the vicinity of Kansas City. Lower prices have been quoted by some of the bridge builders, which has had the effect of checking business, buyers being inclined to hold off, awaiting further developments. A great deal of inquiry is still in the market, and as the business is in sight it must eventually be placed. The Plate mills are receiving a fair tonnage, but it is mostly in small lots. Eastern mills are reported to be in excellent shape so far as Sheared Plates are concerned, but business in Universal Plates is somewhat slack owing to the labor troubles, which have checked the consumption of this character of material. The situation in Bar Iron is not satisfactory, the mills being unable to secure enough work to keep them employed, and prices are showing further reductions. We quote at tidewater as follows: Beams, Channels and Zees, 1.75c. to 2c.; Angles, 1.75c. to 2c.; Tees, 1.80c. to 2c.; Bulb Angles and Deck Beams, 1.90c. to 2.25c. Sheared Steel Plates, in carload lots, are 1.78c. to 1.85c. for Tank, 2c. to 2.10c. for Flange, 2.10c. to 2.20c. for Marine and 2.25c. upward for Fire Box. Refined Bars are 1.65c. to 1.80c.; Soft Steel Bars, 1.70c. to 1.80c.

Old Material.—Dealers report the market more stagnant if possible than during previous weeks. Very few inquiries are being received, and of these only a small part lead to any business. Quotations are wholly nominal under the circumstances. Approximate figures are as follows per gross ton, New York and vicinity:

Old Iron Rails.....	\$19.00 to \$19.50
Old Steel Rails, long lengths.....	18.00 to 18.50
Old Steel Rails, short lengths.....	15.50 to 16.00
Relaying Rails, heavy sections.....	22.50 to 23.00
Old Car Wheels.....	17.00 to 18.00
Old Iron Axles.....	22.50 to 23.00
Old Steel Car Axles.....	20.00 to 21.00
Heavy Melting Scrap.....	15.50 to 16.00
No. 1 Railroad Wrought Iron.....	16.50 to 17.00
Iron Track Scrap.....	15.50 to 16.00
Wrought Pipe.....	11.50 to 12.00
Ordinary Light Iron.....	8.50 to 9.00
Cast Borings.....	6.00 to 7.00
Wrought Turnings.....	12.00 to 12.50
No. 1 Machinery Cast.....	15.50 to 16.00
Stove Plate.....	10.00 to 10.50

Metal Market.

NEW YORK, August 5, 1903.

Pig Tin.—During the past week there has been a fair degree of activity, and the premium for spot Tin has been maintained because of the light stock and the small quantities afloat. According to the monthly statistics of the New York Metal Exchange the stocks in this country at the close of July are 919 tons, as compared with 2792 tons at the end of the previous month. There were afloat 2115 tons, as compared with 3210 tons. On the other hand, the stocks in London and Holland increased from 4170 tons to 7736 tons, which accounts for the fact that London has not responded to the movement here. During the week spot sold up to 28.85c. but closes at 28.25c. to 28.55c., while August closes at 27.60c. to 28c. London closes with £127 for spot and £123 for futures.

Copper.—Reports have been current that the Calumet & Hecla Company had made a large sale to consumers for forward delivery at less than 13c., but these reports have not been confirmed. Consumption seems to be falling off, manufacturers complaining of the volume of business. The requirements of the electrical industry in particular are showing a falling off, due to the stoppage of work on undertakings in progress. Statistics compiled by the New York Metal Exchange show an increase in imports from 29,737 gross tons during the first six months of 1902 to 36,095 tons during the corresponding period of 1903. Exports have fallen off from 98,506 gross tons during the first half of 1902 to 66,214 tons during the first six months of 1903. This would indicate that our home markets must take care of 38,650 tons more than last year during the same time, in addition to the considerably increased domestic production. We quote: Lake and Electrolytic Copper, 13c. to 13.25c., and Casting, 12.75c. to 13c. London cables spot.

Pig Lead.—The premium on spot Lead has almost disappeared, but 4.20c. is still nominally quoted for spot, with 4½c. for August delivery. For 50-ton lots 4.10c. is quoted.

Spelter.—There have been no new developments and we quote 5½c. for spot and 5¼c. for August.

Antimony.—Hallett's is still quoted 6.50c., Cookson's 7.50c., and other brands 6.25c. The market is weak.

Nickel.—Is quoted at 40c. to 45c. for large quantities, and 50c. to 60c. in small lots.

Quicksilver.—A moderate business is reported, the market ruling at \$47.50 for flasks of 76½ lbs. London cables £8 10s.

Tin Plate.—The volume of business is slackening, and concessions to the extent of 5c. per box are being made on Terne Plates. The American Tin Plate Company quote \$3.80 per box of 14,420 100-lb. Cokes, f.o.b. mill, equivalent to \$3.97, New York.

Iron and Industrial Stocks.

The better feeling in the stock market which had been gradually developing for several days was abruptly checked by a severe break on Tuesday of this week. Liquidation of an insistent character set in which depressed the general list as well as industrials and established new low records for some of the stocks. The shares of the United States Steel Corporation were particularly weak, and on that day the common stock declined to 21 and the preferred to 69. On Wednesday morning the common went still lower, touching 20½. The severe break in the steel stocks is attributed to a widespread feeling that a new policy may be inaugurated by changes which have occurred in the *personnel* of the Finance Committee. It is alleged that interests which have become more prominent will be inclined to reduce the dividend on the common stock or pass it altogether. This, however, should, if it occurred, strengthen the preferred stock, as the reserve would then be increased to such a point as to make the dividend on the preferred more certain. The stock market was weak on Wednesday morning, but improved after the failure of a brokerage house was announced, this evidently having been the immediately depressing influence. Prices at noon on Wednesday were as follows: Steel, common, 21¼; preferred, 69½; Car & Foundry, common, 31¼; Locomotive, common, 16; Pressed Steel Car, common, 40½; preferred, 80¼; Railway Steel Spring, common, 24¾; Republic, common, 10½; preferred, 62½; Sloss-Sheffield, common, 31; Tennessee Coal & Iron, 37.

Dividends.—Ashton Valve Company have declared the regular quarterly dividend of 1½ per cent., payable August 15.

A good rust preventive is made as follows, according to the *London Engineer*: Dissolve 1 ounce of camphor in 1 pound of melted lard; remove the scum; mix as much black lead with the lard and camphor as will give it an iron color; clean the machinery well; smear with the mixture; after 24 hours rub off; clean and polish with soft cloth.

The New York Machinery Market.

NEW YORK, August 5, 1903.

Conditions in the spring indicated a very prosperous summer trade, and it was thought that July business would show a material increase over that of the same period for the past two years; but in this it was disappointing. Machine manufacturers say that the sales did not equal those of July a year ago. They had expected that many of the large projects which were under way would come to a head in the early summer, but most of these are still holding off. Especially is this the case with the railroad companies who have planned extensive shop enlargements, some of whom sent out proposals some time ago, and have either bought only part of their requirements or none at all. This state of affairs is attributed largely to the bear movement in the stock market, which seems to have caused officials of large corporations to defer extensive purchases until the present depression is over. As has been stated in these columns, the Pennsylvania Railroad is constructing shops at various points, which will involve an expenditure of several million dollars, but practically none of the machinery has been bought. Taking the trade as a whole, it is as good as can be expected for this time of the year. The shops have plenty of work on hand and a fair demand for tools continues. Nothing of importance has come up during the past week, and conditions remain unchanged from those of the past two or three weeks.

It is intimated in certain quarters that the Pennsylvania Railroad Company are preparing a large list of tools for their new shops at Wilmington, Del.; Burckett Station, near Altoona, Pa., and the "Meadows," near Jersey City, N. J., but it is thought that it will be some time before it is issued and that the purchases will not be made before the first of the year. At the "Meadows" shops, where they are building a large boiler shop and making other important improvements, the cranes are about the only equipment thus far secured.

It will be recalled that several months ago machine tool builders sent in bids for the mechanical equipment for the proposed new shops of the Southern Railway Company, and that later it was stated that they had decided to postpone the improvements indefinitely. Indications are now that it will not be very long before the company will again take up the matter of equipment, as they have already started work on the additions to the shops at Atlanta, Ga., and are asking bids for the construction of large shops near Salisbury, N. C., and additional shops at Knoxville, Tenn.

From Plattsburgh, N. Y., comes the report that the Delaware & Hudson Railroad Company have let contracts for the construction of five new brick buildings in their yards at that point, including a machine shop. These shops are to be used for repairs on the Chateaugay road, which they recently acquired, and will be erected at a cost of about \$80,000.

The Missouri, Kansas & Texas Railway Company intend to enlarge their shops at Parsons, Kan. While no details have as yet been definitely decided, we understand that the management contemplate doubling the present capacity. The company are erecting a new 65-stall roundhouse at that point, 32 of which are expected to be occupied this year. William O'Herin is superintendent of machinery and equipment.

A project involving a good sized amount of electric machinery is shaping itself in the City of Mexico, where plans are under way for the electrification of the entire system of the Mexican Traction Company. The road has been placed in charge of M. R. McAdoo of 15 Wall street, New York, who is now in Mexico straightening out the legal end of the matter, and until his return in about two weeks the size and kind of power plant to be erected will not be decided upon. We can state, however, on good authority, that none of the equipment has been purchased. Mr. McAdoo is connected with the New York & New Jersey Railroad, which is constructing a tunnel under the North River.

In preparation for the relaying of their tracks the Topeka Railway Company, Topeka, Kan., are to equip a \$35,000 shop where the foundry and machine work for the construction will be carried on. The large horse car barn which has recently been used for storage purposes is to be cleared out, skylights and ventilating apparatus put in and the machinery installed in this building. The particular work for the present will be the making of curves, turnouts and crossings for their own road, but later a regular machine shop business will be carried on, and work will be done for other street railways. The entire shop equipment was purchased from the Niles-Bement-Pond Company of New York.

The orders have not been placed as yet by the Erie Railroad in connection with the improvements contemplated at its Meadville, Susquehanna and other shops. The fact that

bids were being received on about \$100,000 worth of machinery for this work was mentioned in this column two weeks ago. We are advised that a large foundry is also planned for Meadville, Pa.

The National Fiber Pulley Company, recently incorporated in the State of Maine with a capitalization of \$1,000,000, intend building a plant either at Cincinnati, Ohio, or Covington, Ky., for the production of fiber pulleys, &c. The product of the company will be manufactured under recent patents. The building of the plant will be definitely decided upon next fall, and it is thought that before the end of this year the equipment, to include hydraulic presses, wood and straw pulp making machinery, power plant equipment, lathes and other machinery will be secured. According to the plans of the company other plants will be constructed in Eastern New York and in Colorado or Nebraska as soon as the plant now in construction is completed. Charles S. Furber of Covington, Ky., is in charge of the work. F. L. Dutton is the president of the company, E. F. Whittum is treasurer and the other directors, in addition to the foregoing and Mr. Furber are J. P. Ernst of Covington, Ky., and J. W. Strichli of Cincinnati, Ohio.

It seems that the hydraulic plant to be installed on the Conchos River, about 40 miles from Parral, Mexico, by the Conchos River Power Company is not to be as large as was expected. About 3000 horse-power is to be developed, which will be transmitted to the mines in the vicinity for light and power purposes. Contracts for the machinery will be let within the next 60 days through the consulting engineers, the John F. Kelly Engineering Company, 149 Broadway, New York.

At a meeting of the creditors of the Mossberg & Granville Mfg. Company of Providence, R. I., held August 4 at the office of Nathaniel S. Smith, referee in bankruptcy, the following cash offers were made for the entire property: Gillies & Cleary, 115 Broadway, New York, \$30,100; J. P. O'Donnel, 7 Wall street, New York, \$24,280; Garvin Machine Company, New York, \$21,758; H. M. Williams, Attleboro, Mass., \$30,000. After considerable discussion the creditors adopted a resolution authorizing the referee in bankruptcy to receive sealed proposals until August 11 for the equipment and patents at an upset price of \$32,500 and to transfer the property to the highest bidder. In case no bid reaches the minimum price of \$32,500 the referee is authorized to disposed of the property at public auction. Bids will be opened at noon, August 11, at Mr. Smith's office, 68 William street, New York.

The following awards have been made for the three electric traveling cranes for the Boston Navy Yard, bids for which were opened July 25:

Alfred Box Company, Philadelphia, item 1, 40-ton electric traveling crane, \$6950.

Cleveland Crane & Car Company, Wickliffe, Ohio, item 2, 7-ton electric traveling crane, \$1930.

Northern Engineering Works, Detroit, Mich., item 3, 5-ton electric traveling crane, \$1695.

Bids were submitted as follows:

Item 1, price for 40-ton electric crane; 2, price for 7-ton electric crane; 3, price for 5-ton electric crane; 4, price for all three cranes; 5, price for 7 and 5 ton cranes; 6, time.

Northern Engineering Works, Detroit, Mich., item 1, \$7750; 2, \$2180; 3, \$1865; 4, \$11,700; 5, \$3990; alternate proposal under item 2, \$2010; item 3, \$1695; item 5, \$2670.

Manning, Maxwell & Moore, New York, item 1, \$8228; 2, \$2672; 3, \$2560; 4, \$12,846; 5, \$5084; 6, three months.

Whiting Foundry Equipment Company, Harvey, Ill., item 1, \$7100; 2, \$2400; 3, \$2250; 4, \$11,350; 5, \$4500.

Pawling & Harnischfeger, Milwaukee, Wis., item 1, \$8000; 2, \$2235; 3, \$2200; 4, \$12,250; 5, \$4400.

William Sellers & Son, Incorporated, Philadelphia, Pa., item 1, \$10,625; 2, \$3630; 3, \$3420; 4, \$17,675; 5, \$7050; 6, six months.

Morgan Engineering Company, Alliance, Ohio, item 1, \$8285; 2, \$2695; 3, \$2575; 4, \$13,250; 5, \$5170; 6, four months.

Niles-Bement-Pond Company, New York, item 1, \$7496; 2, \$2340; 3, \$2690; 4, \$11,800; 5, \$4790.

Alfred Box Company, Philadelphia, Pa., item 1, \$6950; 2, \$2900; 3, \$2750; 4, \$12,000; 5, \$5275.

Cleveland Crane & Car Company, Wickliffe, Ohio, item 1, \$7185; 2, \$1930; 3, \$1850; 4, \$10,900.

Alliance Machine Company, Alliance, Ohio, 7-ton crane, \$2987; 5-ton crane, \$2987; 40-ton crane, \$7422.

The contract for the construction of the dry dock at Norfolk, Va., was awarded to John C. Rogers of New York for \$910,000. Bids were opened July 25.

The contract for the coaling plant extension at Narragansett Bay, Bradford, R. I., was awarded to Augustus Smith of New York for \$407,000. Bids were opened July 15.

The Maryland Steel Company have been awarded the contract for the construction of two steel twin screw sea-going suction dredges for service on the great lakes, both boats to be delivered at Sparrow's Point, Md. Their bid was \$165,000 for each boat, time 11 months.

As soon as plans can be gotten ready contracts will be let for the new Seventy-first Regiment Armory, which is to

be erected at Park avenue and Thirty-fourth street by the Fleischmann Realty & Construction Company, 1490 Fifth avenue, New York. The building will be 179 x 236 feet, and the contract price, covering both equipment and construction, is \$617,300.

The Atlanta Terra Cotta Company, Atlanta, Ga., who are building a new plant, advise us that they are in the market for a system of fire protection, consisting of an underwriters' duplex steam fire pump, 16 x 9 x 12 inches, a 15,000-gallon steel tank, 1000 feet of 6-inch water pipe, valves, fittings, &c., seven standard hydrants and 1000 feet of standard cotton rubber lined hose.

The stockholders of the White Mountain Paper Company, who recently passed into the hands of a receiver, have received information that the plant of the company at Portsmouth, N. H., will be converted into a lumber and pulp plant. It will be noted therefore that the original plans of making paper have been abandoned. This move was necessitated, it is said, in view of the fact that \$2,000,000 more than originally estimated would be required to equip the plant for making paper. The estimates of experts regarding the value of the New Hampshire timber lands owned by the company place the value at between \$5,000,000 and \$6,000,000.

Drowned Coal.—The run of the "Spartiate" to China and back emphasizes the importance of the experiments which the Admiralty are carrying out on the preservation of steam coal by submersion, says the *Naval and Military Record*. On the run out the ship burned 3000 tons of coal, and on the run home 4400, an increase, in round numbers, of 50 per cent. The bulk of the coal consumed one way had been stacked in England; the whole of the coal consumed on the run home had been stacked on tropical or semitropical stations. And in exact ratio to the bad quality of the coal and the heat of the climate so was the work of the stokers increased. It may be assumed that the coal shipped on the foreign stations was of fairly good quality of its kind, for it not infrequently happens that the increased consumption goes up 100 per cent. If, however, the submersion trials prove what they are hoped to prove, coal shipped at Aden or Hongkong will have the same endurance as fuel shipped at Devenport or Portsmouth.

Whereas in Stockholm 15 or 20 years ago almost all building was broken off during four to five months every winter, it is now the exception that such operations are hindered by frost more than a few days or a few weeks annually. What 20 years ago was considered practically impossible has now become everyday practice. To enable work to be carried on during frosty weather the bricks should be porous and perfectly dry, that they may readily absorb the moisture in the mortar, and the water, sand and bricks must all be heated.

A 100-ton floating crane has undergone a successful test at the Navy Yard, Brooklyn, in the presence of the yard officials, and the huge contrivance withstood the strain of a lift of 115 tons dead weight. In a short time the crane will be officially turned over to the Government. Its construction was begun in 1899, on a contract basis of \$100,000. The crane is said to be the only one of its kind in the world.

A strike occurred at the Stark Rolling Mill Company's sheet mill, at Canton, Ohio, this morning. The company require 11 heats to be rolled per turn instead of nine, as provided in the Amalgamated Association scale, and threatened to close themselves, which the men forestalled.

The Republic mill at Youngstown is scheduled to make the first blow with its new converters on August 15. The new blooming mill will not be ready so soon. The new vessels are 10-ton, while the old ones were 5-ton, but were run up to 7 tons. The company will not be able to sell much steel until about October.

At New Britain, Conn., on August 5 the Central Labor Union refused to indorse the strike of the molders against the American Hardware Company. This is significant, in that it shows that the union men are not in sympathy with the strikers.

The Chicago Machinery Market.

CHICAGO, ILL., August 1, 1903.

One of the most significant features of the machinery industry developed during the month of July is the increased number of sales for export made by manufacturers in this section. Sales of mining machinery have been made to South Africa to a considerable extent, and some important contracts for mining machinery and wind mills have been taken for export to South America; but several manufacturers also note a considerable growth in their export trade to Europe, a number of machine tools, among other machinery, having been sold during the past month. Some important orders for power transmission and machine tools have also been taken for export to Canada, and more urgent inquiries are coming from Mexico, mainly for mining machinery, but also for small machine tools. Manufacturers of wind mills for many months have noted a falling off in their domestic trade, due to the wet weather in many sections and floods in territory where they have hitherto had a satisfactory trade. They have therefore turned their attention to the export business with gratifying results, one large manufacturer having made heavy shipments during the past month. Travelers representing steam pump manufacturers report that a number of American manufacturers are building plants in European countries, it being intimated that such action is prompted by high duties on imports, which, it is averred, might be avoided by the institution of reciprocity treaties. One local dealer, a branch of a large Eastern concern, reports having secured a small portion of an order for machine tools, aggregating about \$2,000,000, for shipment to Europe. The order, however, was mainly made up of units of special machinery, the largest being for a gun lathe costing \$100,000, which went to an Eastern manufacturer. Manufacturers of agricultural implements have shown evidence of increased activity, having given considerably more attention recently to foreign trade, securing some orders of moment, and within the past ten days have been purchasing steel billets and malleable castings to cover such contracts. They report that they have been able to secure lower prices on billets than for many months, and have purchased domestic steel in preference to foreign, having obtained better prices, notwithstanding the drawback allowed on purchases of foreign billets. These statements seem to verify the reports that the billet pool has determined to keep out foreign material at any cost, and have agreed to make prices in accordance with foreign competition. Open hearth steel bars, too, are said to have been offered at 1.70 cents, New York, for export to South Africa with engines and mining machinery.

Reports More Encouraging.

Generally considered, reports from both manufacturers and merchants are of a more encouraging nature, a more confident feeling having developed, especially within the last two weeks. However, there is considerable irregularity in advices. The increase in trade has come mainly from small industries, both in the city and nearby territory, largely for machine tools for quick shipment. Some local merchants have placed several small stock orders with manufacturers, there being a disposition to defer large purchasing in anticipation of lower prices, which are confidently expected. It should be noted, however, that on July 15 the new schedule of prices on lathe attachments, and also on additional feet of lathe bed, went into effect, the advance ranging from 5 to 7½ per cent. On the same day, also, a similar advance was established by most makers of planers; but as one large manufacturer refuses to advance prices dealers believe that the advance will not be held successfully, especially with the tendency of prices of raw material downward.

There seems to have been quite a revival in the demand for second-hand machinery, the supply being altogether inadequate to meet the demand, orders coming largely from plants equipped with water power for steam machinery which is being installed for reserve power. Flour mills, cement plants and isolated electric light plants are also in the market for second-hand machinery.

One point of interest is that the largest manufacturers report that they have enough business secured to keep them operating at full capacity for several months, the very largest, indeed, having sufficient orders to keep them busy into next spring.

The Attitude of Railroads.

Much attention has been attracted by the attitude of railroads and conflicting advices received. In the main,

steam railroads seem to be less free purchasers of machinery and other equipment. It is announced that the Pennsylvania Railroad has suspended purchases of equipment aggregating \$3,000,000, half of which was to be expended on the Pan Handle and the other half on the Ft. Wayne division. Included in this equipment were many thousands of dollars of machinery for isolated plants along these lines, orders for which are understood to have been canceled. These reports have been partially, at least, substantiated, and taken into consideration with the cancelling or carrying over of contracts for rails intended to be used in 1903 into 1904 and the suspension of contracts for rolling stock by some roads, has tended to cause uneasiness in the machinery trade. One of the largest car building companies is said to have reduced prices on cars very materially, there being increased competition for the business now offering. It should be noted that, as a rule, the railroads which are disposed to take the tonnage of rails contracted for 1903 are largely through the recently flooded sections, where grading was interfered with and some of the roadbeds damaged by water, so that the rails cannot be laid as originally anticipated.

It is understood that both the Union Pacific and the Denver & Rio Grande railroads have issued lists of machine tools for 1904 purchases. Requisitions have been made, but the lists have not yet been put out by the purchasing departments; the Denver & Rio Grande list is expected to be issued in the near future, and the movements of both roads are being watched with interest by the trade. Local merchants are now figuring on the list which has been put out by the Chicago & Northwestern. The Chicago, Milwaukee & St. Paul, the Rock Island and the Chicago, Burlington & Quincy railroads have been making small purchases of machine tools during the past two weeks. It is expected that these small purchases will be continued, orders ranging from \$1000 to \$6000 each.

New Buildings and Equipment.

The Western Electric Company are expected to put out a large list of machinery within the very near future, the equipment to be installed in the building now nearing completion, details for the construction of which have been given in *The Iron Age*.

It is reported that the Chicago City Railway Company have purchased ground on Wabash avenue, upon which they will erect a building and install a condensing plant. The trade are also much interested in the movements of the Chicago Traction Company and the South Side Elevated Railway Company, considerable trade being in sight for the machinery trade, but it is understood that plans have not yet been fully completed.

The attention of large local manufacturers, especially of compound engines, is still centered largely in the East, where considerable business is anticipated among both the steam railroads and elevated and trolley lines. Some very desirable contracts have been taken in Boston, Mass., and Grand Rapids, Mich., within the past few weeks, the latter contract being placed only a few days ago.

The Atna Foundry & Machine Company, Springfield, Ill., have just completed a large addition to their machine shop and are now installing an electric crane. They expect some time in the near future to change their motive power throughout to electricity.

The B. F. Barnes Company, manufacturers of machine tools, Rockford, Ill., while not contemplating any additions to their plant, are installing some new machinery in their present quarters.

The Nordberg Mfg. Company, Milwaukee, Wis., are just completing an addition, 100 x 220 feet, to their machine shop, which is to be fully equipped with new machine tools, and next spring another addition of 105 x 220 feet will be made to the erecting shop.

Chas. H. Besly & Co., Chicago, announce that because of the increased volume of business at their Beloit factory they are making additions which will doubtless require additional equipment.

The Wilmarth & Morman Company, Grand Rapids, Mich., contemplate making improvements to their plant and the installation of new machinery in the near future.

The Chicago House Wrecking Company, Chicago, are completing the construction of a large machine and boiler shop, which will be equipped with modern machine tools, all electrically driven.

The New Doty Mfg. Company, manufacturers of punching and shearing machinery, of Janesville, Wis., are considering plans for the building of a new foundry in connection with their plant.

Power Transmission.

The Stephens-Adamson Mfg. Company, Aurora, Ill., say that the volume of their orders at the present time is larger than it was last year; but while they have a large amount of business on hand, it seems to be made up mainly of special large contracts, the general trade not being as good as it was last year. They have work enough on hand to keep them busy for the balance of the year without taking additional orders. They can see that the lower prices of pig

iron, coke and other material have had some effect in lowering the prices of castings, and they believe that the lower prices of raw material will also lower the prices of manufactured products and stimulate operations in a way that will keep up a good demand for their class of machinery. The orders they have on hand are well distributed among manufacturers, among the industries represented being grain elevators, cement plants, flour mills and fertilizer works. In addition to domestic trade, they are enjoying a good business with Canada.

The American Hoist & Derrick Company, St. Paul, Minn., say that the volume of offered business has not declined, and they are assured of a full order book at least to the end of this year. There are no material changes in the selling prices of their productions, as the changes in crude materials so far have been of comparatively small moment.

The Reeves Pulley Company, Columbus, Ind., say that in their wood split pulley department they are crowded. More orders have been entered and more large shipments made during the past 60 days than for several years in a like period. They have recently furnished to the Springfield Paving Brick Company, Springfield, Ill., what is perhaps the largest all wood split pulley ever built. The diameter is 18 feet, width of belt 42 inches and the weight 24,000 pounds. They have recently established a general New England agency with the Niles-Bement-Pond Company of Boston, and have just completed and shipped to them a complete stock of wood split pulleys. The company have also completed and are now shipping a full stock of pulleys to the recently organized American Frog & Mfg. Company of Kansas City, Mo., who will supply the Western trade. In the variable speed transmission line orders for small machines have just about held their own, and the company are comfortably filled with orders. On the larger machines, for paper mill service, they are perhaps further behind than they have been at any time during the past two years, there seeming to be no let up on this line of business.

The Aetna Foundry & Machine Company, Springfield, Ill., say the condition of the machinery industry from their standpoint has not materially changed during the past month. The volume of new orders received and the shipments made during the month of July, as compared with the preceding months of this year and the corresponding months of previous years, are far ahead. Their orders indicate special activity in the coal mining industry, which seems to be having a boom in that section. The lower prices now prevailing for pig iron, scrap and coke are about offset by the higher price of labor. They have just completed a large addition to their machine shop and are now installing an electric crane.

The Northern Engineering Works, Detroit, Mich., report business for July equal to that of the preceding month, and practically the same as during July of last year. Prospects for future business are very satisfactory.

Barnard & Leas, Moline, Ill., say that business with them has not been up to the standard of former years, particularly last year. They attribute this largely to a strike in their shop, the molders going out about three months ago after making demands which could not be granted.

One local company, manufacturing power transmission machinery and supplies, advise that the new orders received and shipments made during the month of July are larger than in any previous July. The majority of them are for larger and more important installations, on which they are able to get considerably longer time for delivery than usual. Collections during the past six weeks have been a trifle slow, but not to any extent. Orders already booked insure the working of the plant to its utmost capacity for the balance of the year, at least.

Engines, Boilers and Pumps.

The Nordberg Mfg. Company, Milwaukee, Wis., say that orders received and shipments made during the month of July compare favorably with the preceding months of this year, and exceed those of the same month of 1902. Collections have been a little slower during the month. They are booked ahead for eight months, day and night, full force, and have not had to shade prices for the sake of securing orders. They are just completing an addition of 100 x 220 feet to their machine shop, which will be fully equipped with machine tools.

The Quincy Engine Works, Quincy, Ill., state that their business for the month of July has been satisfactory. They are inclined to think that the development of new conditions in the general business situation has affected the machinery business, making the demand less urgent. There is considerable business in sight, and what is already booked will insure the working to full capacity for some months. Prices are still well maintained, except in the case of castings, in which the lower price of pig iron has resulted in lower prices for new business.

Fuller & Johnson Mfg. Company, Madison, Wis., advise that trade during the month of July has been quiet and not equal in volume to that of a year ago.

The Union Steam Pump Company, Battle Creek, Mich., say that during July matters seemed to pick up, and while

the trade does not appear as energetic as it was a year ago, the situation is fairly good. Orders run about the same as they did a year ago with reference to standard sizes and designs, but the demand at present is largely for quick delivery and there is not the call for future shipments that there was at this season last year.

One manufacturer of machinery in Kansas calls special attention to the congested condition of the railroads. It is difficult to get raw material with any degree of promptness, and trouble is experienced in getting shipments through to customers.

The Whitehead Machinery Company, Davenport, Iowa, report July as a very heavy month, probably the heaviest in their history. They notice more or less business from water power plants, installing steam machinery for reserve in case of emergencies. Combination flour mills and electric light plants appear to be springing up throughout certain sections of the country. The demand is largely for medium sizes of equipment. The supply of second-hand machinery is said to be inadequate to meet the volume of inquiries received. The company have contracted with Snoqualmie Falls Power Company of Snoqualmie Falls, Wash., to furnish them a complete 1500 horse-power steam plant for reserve. They have also furnished the Electric Plaster Company of Blue Rapids, Kansas, a similar plant for use in case of accident to water power. This latter company are a combination of a plaster mill and an electric light plant, supplying light for the city. They have also received an order for a complete steam plant for the electric light works at Jackson, Ky. The electric light plant at Perry, Iowa, has purchased from them 650 horse-power Heine safety water tube boilers; the Seaview Railway Company, Narragansett Pier, R. I., an 18 x 42 Corliss engine; the Barry Mfg. Company of Muscatine, Iowa, an 18 x 42 Corliss engine; the Seward Cereal Mills of Seward, Neb., a 12 x 36 Corliss engine, and the Cotton Mill, at Lockland, Ohio, 300 horse-power compound automatic.

The Otto Gas Engine Works, Chicago, note that sales of gas engines, conveying and transmission machines during the past month have been about equal to the corresponding month of last year. The horizon is not clear, however, the decline in prices of stocks having a tendency to cut off considerable purchasing and causing the countermand of not a few orders already secured. Prices of standard lines in which they deal are fairly stationary at the present time.

The Strang Engine Company, Chicago, have found no essential change in the price of castings recently, and, in fact, have found difficulty in getting castings, which is attributed to the scarcity of molders and other disturbances in the labor world rather than to lower prices of raw materials. This company have but recently begun the manufacture of gas, gasoline and kerosene engines at Harvey, Ill.

Machine Tools.

The B. F. Barnes Company, Rockford, Ill., state that the condition of the machinery business in their line is still flourishing. Naturally they have not received as many orders during the month of July as they did during June and previous months, due to the fact that July is always a dull month. The prospect for business this fall is very promising, and they feel confident that they will have all the business they can handle. Almost invariably tools are required for quick shipment. Collections have been very good. They are not contemplating any additions to their plant in the near future, but are frequently installing new machinery in present quarters. Foreign inquiries and orders are still coming in at about the usual rate, but they anticipate a wider foreign trade in the immediate months to follow.

Manning, Maxwell & Moore, Chicago, advise that some railroads are putting out schedules for machine tools. They note a slight disposition on the part of small industries to postpone purchases of new equipment. Prices of machinery have shown no declining tendency because of the lower prices of raw material, but have been well maintained. A fair number of inquiries are being received, which are generally well distributed over the country. The character of the demand is much as it has been during preceding months.

The Milwaukee Machine Tool Company, Milwaukee, Wis., note that they have found conditions excellent, both in the East and part of the West, and orders for their product have increased rather than fallen off in the last three weeks.

McDowell, Stocker & Co., Chicago, state that they have experienced a better trade during July than they did for the month of June. Their sales will run at least 20 per cent. better, although even so trade will be considerably under that of July, 1902. They are not surprised at this, however, as the general trade experienced during the summer months of 1902 was phenomenal. The company made some very good sales during the month.

Williams, White & Co., Moline, Ill., report that business during the past two months has been quite active with them, although it was dull in the spring. Their collections are good and they find orders coming in freely.

The Geo. Whiting Company, Chicago, say that business is better than it was two months ago, and is constantly showing an improving tendency, although it is probable that most of the orders in sight will not be closed until after September 1. Inquiries are coming largely from railroads, but the general trade still demand considerable equipment in small units. Orders are well distributed over a large territory. Collections and credits are about as good as usual. A few of the principal contracts taken during the month are as follows: Marshall & Huschart Machinery Company, Chicago, one single punch, 12-inch throat; one single quick acting punch, 18-inch throat, and one single punch, 18-inch throat, structural jaw; E. Goldman & Co., Chicago, one special quick acting punch for multiple punching, 15-inch throat; Descubridora Mining & Smelting Company, Mexico, one set 8-foot bending rolls; Illinois Steel Company, Chicago, one set bending rolls; Lacy Mfg. Company, Los Angeles, Cal., one belt power riveter, 49½-inch stake, capacity ¾-inch cold rivets; John A. Mead Mfg. Company, Grand Crossing, Ill., one 48-inch throat shear, with revolving head, to cut 24 inches ¾-inch plate steel each stroke, and one heavy beam coping punch, to cope beams 6 to 24 inches.

The New Doty Mfg. Company, Janesville, Wis., say that business with them is as good as ever. They have about as much work ahead as usual, and prospects are good for some months to come. Collections and credits are about as usual. In the way of improvements, they contemplate building a new foundry.

The Adams Company, Dubuque, Iowa, state that there is not much change in their business, and they are constantly receiving orders for milling machines. The molding machine business is also about as brisk as usual at this season of the year. Their European representative reports having received very satisfactory orders recently.

The American Machinery Company, Grand Rapids, Mich., say that orders received during the month of July slightly exceeded those of July, 1902, in number, while the amounts are very considerably larger. The shipments for the month will be one-third larger than for the same month a year ago, but neither orders nor shipments will equal the best previous months of this year. From their standpoint the prospects for the machinery business were never better than at present. They note the constant receipt of more large orders for the highest grade of machines than can be turned out, and as these machines go to manufacturers of other machinery, it indicates their confidence in the future market. With the exception of a few parties who are ordering for the equipment of new buildings which are not ready, all orders are rush. They have a number of applications for special machines, but have been unable to give very much attention to this branch of trade. Collections have been fairly satisfactory. Their Manchester, England, branch reports a very satisfactory condition of trade, which is constantly increasing. Among the more recent orders booked are the following: New York Navy Yard, Oliver saw bench, Oliver hand jointer and seven wood trimmers; Naval Station at Cavite, P. I., three No. 3 Oliver wood trimmers; Boston Navy Yard, an Oliver 20 inch by 12 foot 8 inch iron bed pattern makers' wood lathe, with power feed carriage, and three No. 6 Oliver wood trimmers; Wm. E. Martin, Troy, N. Y., Oliver hand jointer and Oliver saw bench; Delaware & Hudson Railway, 24-inch Oliver hand jointer; Cincinnati Car Company, five bench trimmers; Elkhart shops of the Lake Shore & Michigan Southern Railway, Oliver saw bench; Altoona shops of the Pennsylvania Railway, Oliver hand jointer.

The Fox Machine Company, Grand Rapids, Mich., say that while the present business is in excess of that of last year, it does not come up to the expectations which they had early in the season. They attribute this to the strikes which have been disturbing the country in different parts, and also the increase paid to labor, which has cut into profits, making it necessary in some cases to increase the selling price. They look for a good fall business, and think it will be in excess of that of last year.

The Hill Tool Company, Anderson, Ind., say that business in their line is holding up wonderfully, and they can see no end to the prosperous condition at present. Collections are very good. People seem to be able to order whatever they need. Foreign business has been exceedingly good, and they now have several large foreign orders on their books.

Tools and Supplies.

The Bignall & Keeler Mfg. Company, Edwardsville, Ill., advise that during the month of July the number of orders received in excess of the number received the same month last year is five, and has increased by two over the number for June this year. They have had one order for long delivery; the others were for shipment as soon as they could get them out. They have orders ahead for three months and will run the shop at full capacity. Inquiries have dropped off somewhat during the month of July, and it is possible that there will also be a slight decrease for the month of August. They report collections slow.

The Chicago Pneumatic Tool Company, Chicago, say that their business is still up to the standard. While the

orders received for the month just past have not been in excess of those received for the preceding months of the current year, there has been no considerable falling off, and the usual business depression incident to this season has been but very slightly noticeable. All their various plants are still working increased forces to adequately fulfill requirements, and should no further orders be received there would still be sufficient business on hand to keep the factories busy for a considerable length of time. The orders received do not cover any one particular class of tools, but seem to be very general in nature, they having secured a considerable number of orders calling for complete air plants, including all necessary pneumatic equipment.

The Ransom Mfg. Company, Oshkosh, Wis., find business conditions very satisfactory. July has been a better month than June, and a much better month than July of last year. They notice that the demand for their machines is running in larger fields. They have enough business in sight to keep them operating for several months, together with a good volume of inquiries which promises a good fall and winter trade.

Chas. H. Besly & Co., Chicago, find the volume of business for July in excess of that of a year ago. They also report all preceding months of this year as showing an increase over those of 1902. They note special activity in demand from makers of agricultural machinery, especially for oil and cups. Many orders are being received from all parts of the country for grinders and for spiral circles for grinders. They are very busy in their tap and die department at Beloit, Wis. The company are making additions to their Beloit factory.

The Wilmarth & Morman Company, Grand Rapids, Mich., note that the volume of new orders received and the shipments made during the month of July are equal to those of the preceding months of this year, and about the same as July last year. A good demand is experienced and several large orders have been taken for long delivery. They find that the English trade has been remarkably good, and considerable activity is noted in South America. A few machines shipped during the past month are as follows: Dry grinders—P. H. & F. M. Roots, Connersville, Ind.; Westinghouse Machine Company, Pittsburgh, Pa.; Vaughn & Rood, Peabody, Mass.; Mayer Bros., Mankato, Minn.; American Smelting & Refining Company, New York; Newark Rivet Works, Newark, N. J.; Coldwell Lawn Mower Company, Newburgh, N. Y.; Garvin Machine Company, New York. Wet grinders—Lima Locomotive Machine Company, Lima, Ohio; El Paso & Northwestern System, New Mexico; American Bridge Company, Ambridge, Pa., and Bucyrus Company, Milwaukee, Wis.

Scully Steel & Iron Company, Chicago, found July a little better month for business, particularly from store. Orders were numerous, not large, which goes to show that the trade are buying from hand to mouth; but apparently there is considerable to do, judging from the number of orders. The railroads, while buying labor saving machinery, are rather conservative in their purchases. The smaller industries are quiet, without much activity, except for what they must have. The manufacturers of machinery are inclined to ask more money. The increase of wages in foundries makes castings more expensive, and generally prices are considerably higher than a few years ago. Inquiries and business are coming from the West, Southwest and Northwest quite freely, and everything seems to indicate considerable activity for the balance of the year. Collections, considering everything, are very excellent and quite gratifying. The demand for tools is fair, and they are receiving a great many orders for labor saving machines, such as bevel shears, rotary splitting shears, and in fact everything in the machinery line which represents a saving of cost. In summing up the entire business for July, taking into consideration the cutting out of contracts on account of labor troubles, everything seems to be very satisfactory.

The Stover Mfg. Company, Freeport, Ill., report that business in the wind mill line still continues dull, with no improvement in sight for the month of August. An interesting feature, however, is the increased demand for this product from foreign countries. The company advise that it is yet too early to determine what the fall trade will be, as business will be almost wholly influenced by crop conditions.

Joseph T. Ryerson & Son, Chicago, state that the general disposition of the machinery trade is to be more conservative, but the manufacturers of machinery do not seem disposed to make lower prices for their product based upon the lower prices of raw material. Railroads are not inclined to put out as many new schedules, although one or two roads are contemplating rather large equipments. The demand for pneumatic tools has by no means decreased, even the smaller industries showing a disposition to purchase air equipment. The bulk of the machinery orders is from the South and West, and the fall promises an increase over the summer months. The demand is principally for small tools, both renewals and new plants.

Prominent manufacturers of ice making and refrigerat-

ing machinery advise that new orders received and shipments made during July compare favorably with preceding months of this year and with the corresponding months of a year ago. Orders received are of the same general character as received heretofore, for large and small units of standard sizes and for fairly prompt shipments. A tendency is noted toward lower prices of their product. Inquiries from foreign countries have shown a slight decrease.

The Chicago House Wrecking Company, Chicago, advise that their volume of business during the past 60 days has been largely in excess of any business they have done in the same period this year. The volume of inquiries is heavy, coming mostly from large concerns, distributed all over the country, as well as from foreign countries, they having made several large shipments to Cuba, and one shipment to South Africa. The orders comprise machinery of all sizes and descriptions, largely for quick shipment, although the company report that their facilities are ample to accommodate most customers with any delivery. Sufficient orders are on hand to keep their machine and boiler shops in active operation for the next 90 days, and they are taking a large number of orders for delivery after that time. The volume of business is so large as to require the working of three shifts of men day and night. Some large contracts have been taken from prominent saw mill concerns in the South, also one oil mill, two large irrigating plants, three isolated electric light and power stations, and several large Westinghouse engines for prominent street railway concerns. Business among mining companies has also been extensive. They have sold quite a number of diamond drills, rock drills, channelers, &c., and have also equipped several mining companies complete with wire rope tramways, &c. The company state that foreign trade is increasing very rapidly, several large orders having been taken for Cuba, Chili and the Philippine Islands. In the way of improvements, they are erecting a large machine and boiler shop. It is expected to equip the machine shop with the most modern tools, all electrically driven, and they are now arranging to install an electric traveling crane of 30 tons capacity. Arrangements will be made for the laying of railway tracks into the shops, thus providing for the easy handling of heavy machinery. In addition to the machine and boiler shops, which are now under construction, it is proposed by the company to build a large warehouse, 5 acres of ground adjoining their present property having recently been purchased for this purpose. The main building will be 150 x 600 feet, single span, with truss roof 65 feet high. A wing will extend along each side of the building for tool and fine machine work. The company intend to put in a large erecting room, with air hoist for the movement of the work. The company report a rapidly increasing business in other lines of trade, such as mill and factory supplies, plumbing goods, hardware, piping and roofing.

The Anderson Tool Company, Anderson, Ind., announce that they are now making grinding machines under license granted by the American Grinding Machine Company of Anderson. They had hitherto believed that their patents covered the right to use the armature shaft of a motor for mounting and driving grinding wheels, but find that the company above mentioned have secured control of patents which practically cover this part of the electrically driven grinding machine business.

The Philadelphia Machinery Market.

PHILADELPHIA, PA., August 3, 1903.

There is a diversity of opinion in regard to conditions in the machinery market during the past month. July as a rule is a period of inactivity, and in many instances it was no exception this year; some manufacturers, however, have had an unusual influx of new business, which promises well for future activity.

Construction work and additions to plants have, since the abatement of labor difficulties in the building trades, taken a fresh start and a number of concerns are having plans and estimates prepared for extensions and additions, and some for entirely new plants. This will call for a good deal of equipment and indicates a demand for new machinery, &c., which will probably develop in the later months of the year. Inquiries are not reported as numerous as during last month, but this is not unusual at the time. The matter of new equipment and replacement of machinery is frequently deferred during vacation season and only the most urgent business is placed; no importance is therefore attached to the lack of inquiries at this time. Order books with most manufacturers are fairly well filled, the large plants and manufacturers of special heavy tools having probably the most business on their books. Some of the smaller plants are feeling the effect of the lack of orders, but there is no real suffering for want of work anywhere. Many large concerns have the output of their plants for the

balance of the year contracted for, some have covered well into next year, while medium sized plants continue to have two or three months' work ahead.

The various iron and steel casting plants continue very busy, and some improvement in deliveries—particularly in gray iron castings—is to be noted. Labor conditions continue to threaten this branch of the trade. Molders and core makers are dissatisfied, and have been endeavoring to obtain an advance in wages, together with shorter hours. Arbitration committees have been at work trying to adjust matters, but without success. A meeting which will probably decide the matter is being held at Atlantic City, N. J., as we go to press, but what the outcome will be is difficult to conjecture at this writing.

The local and nearby shipyards continue active and have quite a large amount of work on hand. On one day recently three vessels were launched in the Delaware River. The "Medjidie," a war ship building for the Turkish Government, by the Cramp Ship & Engine Building Company; the "Mongolia," which is reported as the largest vessel ever launched on the Delaware, and the second largest built in this country, was sent down the ways by the New York Shipbuilding Company, Camden, N. J., and the "Middlesex," a large steel sea going tow boat, was launched by the Neafie & Levy Shipbuilding Company. All these concerns have a large number of vessels in varying stages of construction.

Foreign demand for machinery and tools remains unchanged. Specialties continue to do an active export business, but there is nothing to indicate an early resumption of foreign trade in general lines.

There is a fair demand for medium standard machines, and tools and deliveries on these goods can usually be made promptly from stock, dealers' floors being well filled on most all lines.

There is no change in the demand for the smaller engines, boilers, machines and tools. Some fair sales have been made with varying deliveries.

Prices generally are unchanged; the demand does not warrant advances, and factory costs make it practically impossible to shade figures to any extent.

The Park shops of the Pennsylvania Railroad Company, Forty-ninth and Viola streets, are to have an addition, 50 x 150 feet, and to be used as a machine and smith shop. Wm. R. Dougherty of this city is taking estimates for the construction of the building.

The Philadelphia Rapid Transit Company intend to build an extension to their machine shops on Schuylkill avenue, near Christian street. The addition is to be 52 x 238 feet, and the estimated cost is about \$20,000.

The Pintsch Gas Company are considering the erection of two buildings and a gas tank on South Thirtieth street. One two-story building 25 x 42 feet is to contain boiler, furnace and pressing room, and the other building, 68 feet 6 inches by 32 feet, two stories high, will contain purifying rooms. The gas tank will have a capacity of 10,000 cubic feet.

It is reported that Camden, N. J., is to have another shipyard. The necessary ground, 300 feet of water frontage, has, it is said, been purchased by Henry Deahrens, Jr., and is located on the river opposite Petty's Island. The work of constructing the new yard is to begin at once. This plant will not enter the list for the construction of large vessels at the time, but will confine itself to repair work and the building of small craft.

The Standard Pressed Steel Company have taken the plant formerly occupied by the Keystone Drop Forge Company, Nineteenth and Clearfield streets, where they will manufacture a new pressed steel shaft hanger and other specialties from pressed steel. This plant is admirably situated as regards railway facilities, being adjacent to both the Philadelphia & Reading and Pennsylvania railroads. Most of the machinery of the new enterprise has been purchased and it will be some weeks before it is installed and the manufacture of pressed steel shapes begins.

The Brown & Zortman Machinery Company, Pittsburgh, Pa., have established a branch in this city, taking space on the machinery floor of the Philadelphia Bourse, 600 square feet being occupied in Section T, and which will be stocked with boring mills, lathes, milling machines and special tools. R. G. English is the manager of the Philadelphia department.

The Wolf Company, Chambersburg, Pa., manufacturers of power transmitting machinery, flour, rice, corn and special machinery, turbine water wheels, mill supplies of all kinds, &c., have opened an export and Atlantic Coast agency in Philadelphia, with offices located at 804 Pennsylvania Building. James J. Pollard, who was formerly located at the Chambersburg plant, is general manager of the new agency, assisted by W. M. Missley, practical miller. This new department will look after the company's business in the New England States, New York, New Jersey, Delaware, Eastern shore of Maryland and eastern Pennsylvania.

The Keystone Drop Forge Company have completed the

removal of their plant to their works at Chester, Pa., and are now fully settled in their new quarters. Many facilities to increase their production, &c., have been installed and they will in a short time be better able to handle orders and to take care of a wider range of work.

The J. R. Van Dyke Company, machinery merchants, report an increase of business over the month of June, with very good indications for future trade. The immediate local demand has not been very large, but extensive shipment of planers, milling machines and cold saw cutting off machines have been made to the northern and eastern part of Pennsylvania.

Dienelt & Eisenhardt continue busy, the foundry particularly so on a large amount of work for local shipyards. Trade in hydraulic jacks has also been very good. This concern will in a few days ship one of their large special oil cloth printing machines to Camden, N. J., parties.

The Philadelphia Roll & Machine Company have lately booked orders for 50 large rolls, which, together with other work on hand, will keep them particularly busy well into the fall months. Their new 15-ton air furnace is nearing completion and work on new core ovens and other improvements to the plant will shortly be started. Inquiry for charcoal iron air furnace castings is increasing and orders for spindles, coupling boxes and other special castings are numerous. A number of rolls have been shipped during the past month to the various large steel and iron plants.

The American Pulley Company advise us that business during the past month has materially exceeded that of June. Inquiries are being received in good quantity and orders are being booked for both foreign and domestic deliveries. Recent shipments of pulleys include one lot of 2000 for export to England; 250 were shipped to New Zealand, while varying numbers have been exported to Melbourne, Australia, South Africa, Copenhagen, Yokohama, Paris, Siam and Bolivia. Domestic deliveries include carload shipments to St. Louis, Mo., and smaller quantities to Atlanta, Ga., and Memphis, Tenn.

The Link-Belt Engineering Company continue busy in all departments. General orders are reported good. Coal handling machinery is being installed by them at the Thirty-third and Market street power house, in this city, for the Philadelphia Rapid Transit Company, and a complete plant for crushing, elevating and screening coal is being furnished the Keystone Coal & Coke Company, Greensburg, Pa. Orders are also in hand for several other coal and ash handling plants. They will also re-equip completely a locomotive coaling station at Glassport, Pa., for the Pittsburgh & Lake Erie Railroad, this being the third equipment of its kind that has been furnished this railway company. In the Renold silent chain drive department a large business is reported. In the Government Printing Office at Washington, D. C., 28 drives have been installed, while the full equipment of the Crompton-Knowles Loom Works of this city is supplied with the Renold drive. The Chas. Eneu Johnson Company, manufacturers of printers' ink, Philadelphia, are among others who have installed a number of these chain drives.

The Energy Elevator Company have secured property adjoining their present plant for an extension of their works. The addition will be used as a work shop for storage of lumber, iron and other materials. Business during the past month, they advise us, has been very good, and a number of orders for the general lines of elevators have been taken.

The Falkenau-Sinclair Machine Company report a very satisfactory month's business. Inquiries have been good and some nice orders have been taken, among which was one for an 800,000-pound chain testing machine for the Boston Navy Yard of the United States Government. All the accessories will be furnished with this machine, including crane, pumps, shears, &c. Among recent deliveries made by these parties was a 150-ton forcing press for the Schenectady plant of the American Locomotive Company, and another press of the same type but of 100 tons capacity was shipped the Canadian Locomotive Works, Montreal, Canada. A 150,000-pound vertical screw testing machine has also been delivered the Pennsylvania Railroad Company for their Altoona shops, and a number of standard presses have been shipped to local and nearby parties.

The Tabor Mfg. Company continue uniformly busy. Orders are satisfactory and keep ahead of the total for the same period last year. Export business has increased materially, three standard molding machines having been ordered during the past week for export to England. There is some very good business in sight, and the outlook for the fall trade is considered favorable.

The Baldwin Locomotive Works continue busy in every department. Inquiries and orders naturally fall off at this season of the year and there is therefore little new business at this time. Orders on hand, however, are sufficient to run the plant at its full capacity well into next year. The work of erecting the new Twenty-sixth street shops has been started and will be pushed to completion. Regular deliveries of

locomotives continue to be made to the various large railway concerns as well as to individual customers.

The Chambersburg Engineering Company have taken a contract for all the hydraulic equipment for the Louisville & Nashville Railroad Company's boiler shop. It includes, among others, the following tools: 17-foot riveter, 150-ton capacity; mud ring riveter, flanging press, accumulator, pumps and three steam hammers of 6000, 3500 and 2000 pounds respectively.

The firm of Thos. H. Dallett & Co. of Philadelphia have lately been reorganized and incorporated as the Thos. H. Dallett Company with the following officers: President, Thos. H. Dallett; vice-president and general manager, Ernest C. Bliss; secretary and treasurer, E. C. Clay. W. H. Van Sickle, lately New York representative of the Under Feed Stoker Company of America and formerly identified with the pneumatic tool industry has been appointed superintendent. The company will greatly extend and enlarge the capacity of their plant, located at York street and Sedgeley avenue, and while continuing the manufacturing of their belt and electrically driven portable drills, deck planers, &c., will devote special attention to the production of Dallett pneumatic tools.

A Strike for Lower Wages.

Theodore Smith & Sons, boiler makers of Jersey City, have asked for police protection of nonunion employees.

Charles Smith, one of the firm, said the strike presented a novel feature, the movement being practically an effort to bring about lower wages. The firm, he said, had always paid union rates, but they had also established the plan of paying extra wages to men who proved to be expert workmen. The union rate, he said, was \$3 a day, but the firm had several men to whom they paid \$3.75 a day in recognition of the better work done by them. When the International Machinists' Union learned this the firm were notified that they must establish a uniform rate of \$3 a day or a strike would be ordered. The firm refused to comply with the demand and the strike followed. The men who were getting \$3.75 a day went out with the others, thus protesting against the higher wages they received. Since then the firm have employed nonunion labor.

Receiver for Perth Amboy Shipyards.—Owing to the failure to collect from the Government on \$48,000 worth of work on two boats building at their yards for the War Department, the Perth Amboy Shipbuilding & Engineering Company, Perth Amboy, N. J., have been placed in the hands of a receiver. Willard P. Voorhees, a New Brunswick lawyer, was appointed upon the application of A. Lawson Ramsay, an officer of the company.

The action of union strikers in harassing the Gemmer Engine Company, at Marion, Ind., and interfering with the men whom the company had succeeded in getting to operate the works aroused the other manufacturers of that city to indignation, and they called a mass meeting, at which they organized for joint protection and made a call on the merchants and other business men of the city to co-operate. The manufacturers agreed that they would dismantle their many plants and move to other cities if they are not treated fairly by their employees and the people of the city. Every evening the Gemmer Company's new employees were met, as they left their work, with a jeering crowd of hundreds of strikers and sympathizers, who, with a band, followed the nonunionists to their homes. They and their employees have been compelled to ask for police protection. The manufacturers appointed a Law and Order Committee, whose duty it will be to point out the violations of the law by the strikers, ask the police to enforce the laws, and to see that the rioters are properly punished.

The August meeting of the New England Foundrymen's Association will take the form of an outing on Narragansett Bay, Wednesday, August 12. There will be a clambake at Field's Point, near Providence, followed by a sail on a chartered steamer to Newport and return. In Newport the 10-mile drive will be taken in and lunch will be served on the return trip.

HARDWARE.

IT is important that trade associations should constantly remember that they are all under the necessity of justifying their existence if they are to have a permanent place among business organizations. They are thus subject to laws which hold in every department of commercial and industrial activity. There is on every side the effort to check waste of material or energy, to avoid every expense which can be dispensed with, and to abbreviate and improve on every lengthened or roundabout process which can be shortened or made more direct. Under the operation of this principle trade organizations must either accomplish something worth accomplishing at the cost which is involved, or in the nature of things they will be discontinued and disappear. Unless they fill a place which is, on the whole, desirable in the economy of trade, there is no place for them amid the pressure and progress of modern business life. It is therefore incumbent on those who are identified with trade organizations to be assured that their special association not only aims at the accomplishment of things which should be accomplished for the benefit of those associated, but that it is fulfilling such a purpose in such a way as to make the results of its operation a justification for all the labor and expense of directing it and carrying it on.

This principle finds frequent illustration in the associations formed by manufacturers for conserving and advancing their interests as the producers of a special line of products. If these compacts accomplish even in fair measure the objects aimed at, the time and effort consumed in forming and administering them will ordinarily—unless, as frequently happens, some disturbing outside influence interferes—make it worth while to continue. The partial or complete control of the market in the special line concerned is evidence that they accomplish something which in a practical way promotes the interests of those who are parties to them. The ends may not be perfectly attained; there may be some ragged edges and irregularities which it is the part of wisdom to ignore; but if, taken all in all, the association or agreement can show enough practical results to justify its existence there is a good reason for its remaining among trade facts and forces. If there are no such results and nothing is accomplished, even in the pleasanter relations induced among the members, there is in these practical days no place for it. Men are too busy and too wise to have to do with associations that accomplish nothing.

These considerations apply with special force to the organizations which are representative of the great classes of trade. These fall into three categories: The associations of the wholesale merchants, the associations of the retail merchants and the associations of manufacturers. Of these the last two are the most recent and represent a present tendency in trade. The organizations by which the jobbing trade are brought together are older and more developed. Some of them have been in existence for a number of years and give in this fact ground for the presumption that they in one way or another advance the interests of their members to such an extent as to make it an actual advantage to be identified with them. The good thus accomplished may obviously be of a very various character. It may have to do with the cultivation of better business methods, the arrangement of prices made by manufacturers with a view to protecting the wholesale trade, the giving to the

houses enjoying such membership a certain percentage in view of such identification with an influential organization, the restraining by a better understanding or positive agreement of unreasonable competition, or the special advantage connected with the periodical gatherings, in which the social element finds ample recognition. In one form or another something which appeals to the members and benefits them or pleases them must be found in the organization, or it would be added to the respectable number of such movements which have had but a brief existence. There will be general agreement among those in touch with associations by which the wholesale trade are brought together that much has been accomplished for the advancement of wholesale interests, and in most cases with a fair, broad minded purpose to recognize and conserve the general interests of the trade at large. The tests which are being applied to such organizations are, however, becoming more and more exacting. This fact should be borne in mind by those who are specially interested in the direction of such organizations and desirous of their continued success. In the long run their usefulness will be the measure of their success.

Condition of Trade.

Mail orders continue to show improvement, and therefore the usual midsummer dullness is less pronounced, but the volume of business has hardly increased to a sufficient extent to cause the belief that a revival of activity has actually set in. It is rather early to expect even the beginning of fall business. The presumption is that the trade are carrying small stocks, and their conservatism in this respect compels them to continue to replace goods which are being called for. The distribution of Hardware is believed to be proceeding on a fairly satisfactory scale, and some confidence is expressed that the demand may continue to increase as the fall season approaches. It is hardly to be expected, however, that the large buyers will stock up as heavily as in immediately preceding years. The decline in Pig Iron, Bar Iron and Copper necessarily develops a feeling of conservatism. Labor troubles have not terminated in the building trades, and therefore the demand for the great line of products required in this direction is considerably under what it should be at this time of the year. The declining values in the stock market are also having their effect in influencing buyers to be cautious in making commitments; but this is believed to have more effect on Eastern buyers, who are more closely in touch with movements in securities than those of other sections. No important price changes have occurred during the week.

Chicago

(By Telegraph.)

A manufacturers' representative, who has just returned to Chicago from a trip through the large cities of Ohio, Indiana and Michigan, says he notices that jobbers are a little slow in placing orders. At this time a year ago they were quick to extend contracts whenever that was possible. Now, though, it is timely for purchases to be made in August, they ponder a few moments, and ask the seller to come around again in 30 or 60 days. The hesitation does not appear to mean that there is anything the matter with trade. On the contrary, the uniform report was that the aggregate of July business was fully up to standard, but the hesitation is the result of the disquieting conditions which have prevailed in financial matters, and the drooping tendencies which have been observable in certain lines of material. In the buying of Hardware by dealers the same general conditions exist. The volume of trade this week was not quite up to that of last week. The wet weather has been one factor in

the decreased buying and the uncertain crop outlook another. These adverse conditions, however, are more on the surface. When goods are wanted for spot shipment there is an urgent injunction that quick delivery be made, denoting a lowness of stocks, and the buyer has ready for illustrative purposes some of his recent experiences in not getting promptly the goods he had ordered and expected. There is little change in the demand for Builders' Hardware, though some improvement has been noted this past week. A rather curious feature was the appearance of inquiries for a bunch of Carnegie libraries in the West, the trimmings of which are usually of an excellent order. In the market for Builders' Hardware, as in some other lines, the local demand has been relatively less than that from the country. The Middle West—that is, from the Chicago viewpoint—the Mississippi Valley, where floods have abounded, has been also a buyer of only medium worth, but the far West has been doing excellently, and there has sprung up within the past few days an increased business from the Southwest, where the fall trade usually takes its start. Carload business for Wire products and other Hardware from Texas, Oklahoma and neighboring States has picked up remarkably. Buyers of Heavy Hardware are taking material in limited quantities, but the aggregate volume of business is fairly good.

St. Louis.

(By Telegraph.)

From the jobbers' standpoint conditions continue very favorable, and present indications are that business will continue to broaden as we approach the fall months. It seems particularly interesting to note the very favorable trade news from such a State as Texas, in which last year, owing to the very serious drought, the business conditions were greatly impaired. This year everything is radically different, and some of our jobbers have increased to a considerable extent their traveling forces in the State with very satisfactory results. We hear little gossip of an unfavorable nature, and collections are said to be, as a general rule, very fair. Trade competition is keen, but prices are well sustained. The unsettled condition of prices for iron is responsible for the generally quiet state of affairs in some lines in the heavy branches of the market.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—The volume of business during July admits of no complaint on our part; and we believe, with all the jobbers in this section, it has been fairly satisfactory, though not quite up to the rush of June and May. We account, however, for this difference by the fact that our salesmen took their vacation about July 1. Besides, the merchants were more than usually anxious about the prospects of the corn, cotton and tobacco crops, knowing that the wheat crop was small. We feel assured, however, now in saying that we shall have fine crops and a healthy fall trade.

The retail merchants have been a little afraid of the declining market, because pig iron had worked off a little. Still, their trade has been good, and every year, we believe, it becomes more generally the policy of both jobbers and retail dealers to keep their stock up to the demands of their trade.

The prospects for August business, we consider, far better than for 1902; and for the past week orders have been coming in, which indicate that retailers propose to lay in fall stocks of Heaters, Axes, Lanterns, Lamps, &c., in time to meet the first demands of the season.

Baltimore.

CARLIN & FULTON.—Trade conditions throughout this section continue good the season of the year being considered. Labor continues to be not only well employed, but also very scarce. In the cities the bricklayer and carpenter, the plasterer and painter have all that they can do, while the factories and machine shops, with some exceptions, are all busy. In the agricultural sections there is a problem to face which labor saving machinery does not entirely solve—viz., where are the farm hands to come from? In some sections mining operations, in

others railroading, and in still another section the establishment and operation of canning factories in the summer and the oyster industry in the winter have such attractions for unskilled labor that farm hands are almost unobtainable. This is a most serious matter for the agriculturist as the tide of emigration rolling in upon us does not now bring tillers of the soil, but mostly a class which settles in the large cities working in the sweat shops and in such occupations as can make use of them.

The present abnormal price of spot cotton, the result of manipulation cannot, of course, continue longer than is required to market the present growing crop, and while it would be a great blessing for the planter to obtain anything near present prices, yet the maintenance of such figures will shut down thousands of spindles throughout the world, and for a while destroy the demand for the staple. There is room for, and will be a readjustment of the market price to that fixed by legitimate supply and demand, which will leave an excellent price this year for the planter, and based upon which most excellent trade should result.

In regard to prices of manufactured Hardware they continue uniformly steady. The Screw manufacturers have just announced a new advanced list price, and we understand that the Axe makers have reconciled their differences and perfected an arrangement not yet given to the public.

While Wall street may have placed a lower valuation on the stock issues of the United States Steel Corporation, it has not yet had the effect of disturbing in the least the selling prices for its products, and we have every reason to expect a uniform steady price for Wire and Nails for the balance of the year. The business done in these commodities will be devoid of speculative interest and based upon actual necessities.

For some time the columns of the daily press have been giving the public tabulated statements of the shrinkage of certain securities in this country running into millions upon millions of dollars, but we must remember that these so-called securities never did represent, in a large measure, actual intrinsic value being nothing but the possible future earnings capitalized.

While the wealth of this country has steadily and wonderfully grown from year to year its progress had not reached the fabulous amount represented by the stock issues of the industrials offered to the investing public, the common stock of which never represented 1 cent of real tangible worth, and the shrinkage referred to is the reaction from the inflation which the investing public seemed so willing to accept.

Legitimate business continues most excellent whether in agriculture, mining, manufacturing or commerce, and the earnings of the railroads, which are the exponents of general trade conditions, indicate that prosperity continues in spite of Wall street misfortunes.

Cleveland.

THE W. BINGHAM COMPANY.—Business conditions in and around Cleveland are very good at the present time. Salesmen are returning from their vacations, and we are surprised at the number and size of the orders that are beginning to come to us at this season of the year, showing quite conclusively that all the retail dealers have been having a good trade and seem to be out of general lines of goods. Orders contain good quantities of Carpenters' Tools, showing that the artisans are at work throughout the country and that labor troubles, which the papers have talked so much about, are not as much a bugbear as some would have us believe.

There is a good deal of inquiry for fall goods, and, realizing the scarcity on many lines of goods last year—viz., Sheet Iron, Elbows, Coal Hods, Stove Boards, Lanterns, Meat Cutters and Stuffers and the like—customers are taking our advice and allowing us to send them forward at our option, thereby insuring them a stock when the trade for the different lines opens up.

The liquidation of stocks, that has been going on for the last week or ten days in Wall street, does not seem to affect business in a general way. Hardwaremen seldom run after strange gods; therefore they are not affected by these spasmodic ups and downs in the money

market. Railroad tonnage and earnings seem to keep up in good volume, showing quite conclusively that there is an immense amount of merchandise moving throughout the country, which goes to prove that trade and barter are in a good, healthy state.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—Jim Keene, San Francisco mining stock gambler in the palmy days, now Mr. James R. Keene of Wall Street fame, cannot fathom the present situation. He says securities have declined 35 per cent., while bank loans have not declined nor bank surplus increased materially. The same general fright and loss of confidence that has overtaken the stock market is spreading through general business. When the fall demand for money is on in full swing probably some of those who have extended their business to their limit will wish that they had not attempted to scale the pinnacle of high prosperity, but had been satisfied with some of the lower stories of the building.

Trade in this section is holding its own, considering the season. Crops are now in a crucial state. Should they be harvested as they now promise, the higher price will more than make up for deficiency in yield. Collections are not as easy as heretofore reported, but that is to be expected just before harvest.

Boston.

BIGELOW & DOWSE COMPANY.—Notwithstanding the chaos in the stock market, it does not interfere with the prices of Hardware, nor does it trouble the Hardware merchants, who are giving their attention to their own legitimate business. Iron and Steel have an established worth, and with conditions prevailing throughout the country at present it would seem foolhardy for any man or body of men to attempt to either "bear" or "bull" their market value, as has been done with stocks and cotton. Hardware manufacturers are still short of stock to supply the demand, else one might look for lower prices; but under present conditions, when the fall trade is about commencing, there is little possibility of many changes before the new year. One must have a fully assorted stock to transact business, and it is a necessity to buy, but it seems good policy to make orders light when the future is considered.

Trade continues in good volume for the season of the year. Prices remain firm and there are few complaints of cutting. The Wire Nail market has been a bit irregular, caused by overstocks in the hands of a few dealers, who were obliged to unload. These stocks are taken up and the market is more firm. There seems to be no probability of any lower market prices for Nails or Wire this fall.

Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY.—The favorable conditions that have characterized our reports for some time past on the state of trade in the trans-Missouri region still hold true. The harvest of small grains, just completed, showed a fairly heavy yield, and of excellent quality. The weather continues propitious for ripening corn, and every indication points to a large crop of this important production. The fall season is now close at hand, and business men are looking forward with confidence to a very active period in all departments. Industrial and commercial activity is being well maintained, and the outlook is essentially favorable. The prosperity of the country appears to be on a substantial basis. Time was, however, when the whole West became hysterical when Wall Street acted panicky, but having enjoyed a series of seasons of good crops, at remunerative prices, the financial situation has vastly improved, and the country now waits to hear about conditions in the cereal belt before a spasm is inaugurated.

Business in the Northwest.

From a Special Correspondent: With the prospect of another large wheat crop, and excellent prices for all farm products, the outlook for fall and winter trade is exceedingly good here in the Northwest. There seems to be no falling off in demand for building materials from

the trade in the smaller towns, and at the present time there is an unusual amount of building both in Minneapolis and St. Paul. There is a growing demand for the better class of goods, and this is especially true in Builders' and Cabinet Hardware. One order for over \$1000 was recently placed by a contractor in Minneapolis, with the specifications that everything was to be of the best.

In referring to the recent cut in price on pig iron one of the largest dealers of the Northwest said: "Some of the people down on Wall street would like the country to think that there was a business depression and hard times just ahead—that the West was in bad shape—that it would take all the money from Eastern banks to move our crops out here this year, and that general business was going to smash. As a matter of fact, it's a good thing that iron is coming down a little; this will have a tendency to reduce prices on some finished products, which have been too high, and will thus shut out imported steel and billets. Business in the West and in the Northwest has never been in a better condition. This is especially true of the Hardware trade. Our orders from the country are larger, and our customers are paying more promptly. Never before in the history of the country has there been as much money on deposit in the banks at this season in the West. It simply means that our farmers and the ranchmen of the West who have had to borrow money to run their farms and ranches are now doing business very much more largely on their own capital. The last four or five years of great prosperity have put the West, and especially the Northwest, in an almost independent position."

If it is true that the prosperity of the country depends on the prosperity of the West, that if crops are good and prices are well maintained good times will follow, then the coming year should be one of very good business. Complaints are still heard in the Hardware trade out here of a lack of some kinds of goods, expressed thus by a St. Paul Hardwareman: "We are not troubled much to sell our goods, very little trouble to collect our money, but bothered very badly to get our orders filled promptly."

NOTES ON PRICES.

Wire Nails.—The demand is for small lots, which amounts to a fair business with the mills, who distributed a larger quantity of Nails during the month of July than in the corresponding month of last year. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carload lots.....	\$2.00
Retailers, carload lots.....	2.05
Retailers, less than carload lots.....	2.15

New York.—The local demand continues moderate, though steady. The market is firm at the following quotations: Single carloads, \$2.20; small lots from store, \$2.25 to \$2.30.

Chicago, by Telegraph.—There is quite an improved demand for Wire Nails in the South, otherwise the trade is without new features. One of the largest sellers to the retail trade notes that the decline in tonnage in Nails as compared with a year ago is about 10 per cent., which he considers a good showing, when the boom character of last season's trade is recalled. Prices are well sustained, as follows: \$2.15 to \$2.20 in carload lots, f.o.b. Chicago. Broken cars sell at 5 to 10 cents higher. For galvanizing 75 cents per keg and for tinning \$1.50 extra per keg is charged.

St. Louis, by Telegraph.—Store trade is quiet, and jobbers quote in small lots \$2.30.

Pittsburgh.—There is a good movement in Wire Nails, considering the season. The mills are not crowded, and are able to make shipments promptly, but are not shading prices in any case, as they are working harmoniously and realize there is too much at stake. We quote: \$2 in carloads to jobbers, \$2.05 in carloads to retailers and \$2.15 in small lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days. For galvanizing Nails 75 cents per keg is charged and for tinning Nails \$1.50 per keg extra.

Cut Nails.—Requirements are light with a steady demand, and mills experience no difficulty in making shipments promptly. Quotations are as follows: \$2.15, base, in carloads, and \$2.20 in less than carloads, f.o.b. Pittsburgh, plus freight in Tube Rate Book to point of destination; terms 60 days, less 2 per cent. off in 10 days.

New York.—The demand is about in proportion to that of Wire Nails, which is light but continuous. Quotations for carloads and less than carloads are as follows: Carloads on dock, \$2.29; less than carloads on dock, \$2.33; small lots from store, \$2.40.

Chicago, by Telegraph.—There is only a moderate trade in Cut Nails, and quotations are without change. Prices remain firm on the basis of \$2.30 in carload lots and \$2.35 in less than carload lots for Steel, Chicago; Iron Nails are held at \$2.45 to \$2.50 per keg from store.

St. Louis, by Telegraph.—The demand for Cut Nails is moderate, and jobbers quote in small lots from store Steel at \$2.40 and Iron at \$2.55.

Pittsburgh.—The mills are quoting unchanged prices on both Iron and Steel Cut Nails, and are booking a fair amount of business only. We quote: Steel Cut Nails, \$2.15, base, in carloads and \$2.20 in less than carloads; Iron Cut Nails, \$2.25, base, in carloads and \$2.30 in less than carloads, plus freight in Tube Rate Book to point of destination, 60 days, less 2 per cent. off in 10 days.

Barb Wire.—Mills are accumulating stocks in anticipation of a large fall business. Present demand is light and is confined to small lots. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots.....	\$2.30	\$2.60
Retailers, carload lots.....	2.35	2.65
Retailers, less than carload lots.....	2.45	2.75

Chicago, by Telegraph.—Gain in shipments to the Southwest is reported, though the volume of business is only moderate at present. Prospects are held to be bright for an early improvement. The market is firm. Galvanized Wire is selling on the basis of \$2.75 to \$2.80 in carload lots and Painted at \$2.45 to \$2.50, the outside price being to retailers. For small lots 5 to 10 cents extra is charged. Staples in carload lots sell as follows: Polished, \$2.80 to \$2.85, and Galvanized, \$2.70 to \$2.75, the outside price being to retailers.

St. Louis, by Telegraph.—The demand at this time for Barb Wire is light, and in small lots from store jobbers quote Painted at \$2.60 and Galvanized at \$2.90.

Pittsburgh.—A very large demand is expected from the West when the consuming trade gets ready to do business, and mills are making stocks in anticipation. Meanwhile the market is quiet, orders being for small lots. Prices are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days: Painted, \$2.30; Galvanized, \$2.60, in carloads to jobbers; Painted, \$2.35; Galvanized, \$2.65, in carloads to retailers; Painted, \$2.45; Galvanized, \$2.75, in small lots to retailers.

Smooth Fence Wire.—There is a natural falling off in demand, incident to the season. New orders are mainly confined to small lots, and contract orders are being filled. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.90
Retailers, carloads.....	1.95
Less than carloads.....	2.05

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized.....	\$0.30	.35	.40	.45	.55	.65	1.05	1.15	

Chicago, by Telegraph.—The mills are behind in their orders for Plain Wire, the demand for all parts of the West being remarkably active. With a probable gain in demand in the early future, the situation is regarded as cheering. It is reported that the Cuyahoga Falls Steel & Wire Company, Cuyahoga Falls, Ohio, will cease to make coarse Wire products and limit production to spe-

cialties. Prices for Wire remain unchanged, as follows: Nos. 6 to 9, \$2.05 to \$2.10 in carload lots on track, and \$2.15 to \$2.20 in less than carload lots from store; Galvanized, 30 cents extra for Nos. 6 to 14 and 60 cents extra for Nos. 15 and 16.

St. Louis, by Telegraph.—The market is firm, with a moderate demand ruling. Jobbers quote in small lots from store: No. 9 at \$2.30 and Galvanized at \$2.60.

Pittsburgh.—Mills expect a very large demand in the fall and are making preparations to meet it. Just at present orders are for small lots. Prices remain firm, and are as follows: Plain Wire, \$1.90, base, for Nos. 6 to 9 in carloads to jobbers, \$1.95 in carloads to retailers and \$2.05 in small lots to retailers; Galvanized, 30 cents extra for Nos. 6 to 14 and 60 cents extra for Nos. 15 and 16.

Cordage.—New business is light, but manufacturers are employed to a greater or less extent in filling specifications on contract orders. Quotations, on the basis of 7-16 inch and larger, range with different manufacturers as follows: Sisal, according to quality, 8½ to 10 cents; Manila, 11½ to 12 cents per pound. These prices are shaded ¼ cent per pound in large quantities.

Paris Green.—Demand continues light. The season when manufacturers can expect orders for Paris Green for use on potato plants is about over. In absence of active demand the schedule of prices given herewith is not adhered to rigidly, and small lots are obtainable at 1 to 1½ cents below the schedule:

	Per lb.
Less than 1 ton.	
Arsenic kegs or casks.....	13¼c.
Kegs, 100 to 175 pounds.....	14c.
Kits, 14, 28, 56 pounds.....	15c.
Paper boxes, 2 to 5 pounds.....	15c.
Paper boxes, 1 pound.....	15¼c.
Paper boxes, ½ pound.....	16c.
Paper boxes, ¼ pound.....	17c.

One to 5 tons, 1 cent per pound less; 5 tons and over, 1½ cents per pound less.

Cotton Cordage.—Cotton Goods, including Sash Cord, Packing, Rope, Mops, Twine, &c., are scarce and high in price. The manipulation of the cotton market by speculators continues, which keeps this staple abnormally high. A number of mills have closed down on account of the price of cotton, which they cannot buy and make into goods at prices which buyers are willing to pay. Under these conditions some jobbers who have stocks on hand are quoting lower than manufacturers' prices.

Binder Twine.—As the harvest moves to the North and Northwest reports indicate that crop conditions are such that the amount of Twine required will not be as large as anticipated, and that there will be no general shortage of Twine. Prices for Sisal and Standard appear to range from 10½ to 11 cents in the Northwest. Flax Twine is said to have passed the experimental stage, and it is understood that the International Harvester Company will put out several carloads for use in the Northwest harvest. Eastern manufacturers have only small lots of Twine to clean up, and are quoting about 11 cents for Sisal and Manila.

Brass and Copper Goods.—Owing to the lower prices of Copper, &c., some reductions have been made, on lots of 100 pounds and over, in the following goods of which Copper is an important component part—viz., Sheet Brass and Brass Wire to 35 per cent. discount from 30 per cent.; Brass Rods and Brazed Tubes to 37½ per cent. from 33 1-3 per cent.; Soldering Coppers, 2 cents per pound reduction, or a base of 17 cents per pound for 3 pound and over, the 2½ pound being now 18 cents; 2 pound, 19 cents; 1½ pound, 20 cents, and 1 pound, 23 cents. Tobin Bronze is lowered 1 cent per pound, the base now ¾ to 3 being 18 cents per pound, and Muntz or Yellow Metal 1 cent per pound, all sizes, the base now being 16 cents per pound.

Glass.—The wage scale covering the fire 1903-04 has been agreed upon between the Glass workers and the American Window Glass Company during the past week, so that now the matter of wages has been settled by all three of the combined companies. An advance of about 10 per cent. was secured from the American Company

over the scale for the last fire. This advance in wages will, no doubt, be demanded of the Independent and Federation companies, and probably secured. These wages will place the cost of manufacturing Glass on an average of about 88 per cent. discount from the manufacturers' list, the price which the jobbers' association paid for their last allotment. This disposes of any probability of cheaper Glass for the coming fire, and puts the market on a substantial basis. Quotations have been more or less irregular for some time, in view of the possibility of Glass being lower this fall, and jobbers have been more or less anxious to dispose of their stocks. Jobbers will probably not place orders for additional Glass until stocks require replenishing, and meanwhile the combined manufacturers are not likely to start their factories. It remains to be seen what action the outside Glass factories will take regarding wages. The Jobbers' Association local quotations are as follows: In small lots, 90 and 5 per cent. discount for the first three brackets and 90 and 15 per cent. discount for all sizes above, either single or double strength.

Oils.—*Linseed Oil.*—On August 3 a reduction of 1 cent per gallon was made in the price of Oils by city crushers. Present demand is confined to small lots, and is light. Large buyers are waiting for 30-cent Oil and are not placing contract orders. Quotations are as follows: City Raw, in lots of 5 barrels or more, 37 cents; in lots of less than 5 barrels, 38 cents per gallon. Out of town brands of Raw are quoted, according to quantity, at 35 to 37 cents per gallon.

Spirits Turpentine.—Local demand is light, owing, to some extent, to a lack of strength in the Savannah market. Quotations, according to quantity, are as follows: Oil barrels, 52 to 52½ cents; machine made barrels, 52½ to 53 cents per gallon.

MICHIGAN RETAIL HARDWARE DEALERS' ASSOCIATION.

THE programme has just been issued for the ninth annual convention of the Michigan Retail Hardware Dealers' Association, which will be held at the Hotel Cadillac, Detroit, on August 12 and 13. The first session will be held on Wednesday morning. At the afternoon session Mayor Maybury of Detroit will make an address of welcome to the delegates, who will also have the pleasure of listening to an address from W. P. Bogardus, president of the National Retail Hardware Dealers' Association. A paper on the subject of "Competition and Margins" will be presented by Fred. J. Cook of Fowlerville, and will be followed by a general discussion. The annual address of President Ireland and reports of Treasurer Weber and Secretary Scott will also be features of this session. The Thursday morning session will be almost entirely devoted to the reading and discussion of papers by William W. Wixson of Minden City on "The People from Whom We Buy," by Henry C. Weber of Detroit on "Looking Both Ways," and by C. M. Alden of Grand Rapids on "Local Organization." The final session will be held in the afternoon. The convention promises to be an interesting and enjoyable one, and it is hoped that a large representation of the membership will be in attendance.

COLORADO RETAIL HARDWARE DEALERS' ASSOCIATION.

AT the recent midsummer meeting of the Colorado Retail Hardware Dealers' Association, at Colorado Springs, a committee was appointed to confer with the wholesale houses doing business in Colorado. This committee consisted of A. L. Branson of Trinidad, president; F. C. Moys, Boulder, secretary; Geo. Wilson, Florence; A. H. Griswold, Fort Collins, and L. C. Hunt, Victor. The committee have just had a two days' conference with the jobbers at Denver. The Colorado jobbers expect to organize a jobbers' association and will do what they can to assist the retail association in the work of improving the general condition of the Hardware business.

The conference just had was of a very pleasant character and will result, it is hoped, in bringing the retailers and jobbers of Colorado closer together than heretofore.

BIGELOW & DOWSE COMPANY.

JUST six months after the fire, which consumed their store and its contents, Bigelow & Dowse Company, Boston, are again established at their old location at 229 Franklin street. Excepting the outside walls everything is new and modern, affording unexcelled facilities for the dispatch of the company's large and growing business. Built under Boston's rigid building laws, the new store is as nearly fire proof as it is possible to make such a structure. The front on Franklin street, 100 feet, and extending back 25 feet is used as an office for salesmen, bookkeeping and executive departments. Electric freight and dummy elevators insure expeditious handling of goods from floor to floor. The basement, covered with granulate, is very light and dry, and has a capacity for storing 6000 kegs of Nails, as well as Building and Roofing Papers, Zinc and other heavy Hardware. The Cutlery room, on the first floor, is entered from the office only. It has been thoroughly refitted, and presents a very attractive appearance. The open Hardware stock is stored on the second floor, in six lines of double faced shelving running from front to rear, with a 12-foot passage way extending around the four sides. This shelving is 600 feet long and 10 feet high, built with steps that enable stock men to stow away goods in the upper shelves without a ladder. It has a pitched roof extending 3 inches beyond the shelving to protect the goods in case of fire. The other floors are arranged with Racks for Shovels and Steel Goods, and open floor space for piling Hardware in cases. Prism Glass in the upper Sashes gives good light throughout the floors. The accommodations for employees are modern and up to date.

HOUSEHOLD SEWING MACHINE COMPANY.

INTERESTS identical with the Secretary Company of Brooklyn and Jersey City have acquired the stock of the Household Sewing Machine Company of Providence, R. I., and the new management took control August 1. The Secretary Company manufactures the Secretary Typewriter at their Brooklyn factory and a Gas Heater in Jersey City, both in rented buildings. It is the intention of the management to eventually combine the business under one roof at the Household factory at Providence, which is amply large enough for the purpose. The two corporations, however, will remain distinct, as the Secretary Company and the Household Sewing Machine Company. The president and general manager of the Household Company is William D. Beam of New York, who will divide his time between Providence and New York, in which latter city he has the management of the Secretary Company to attend to. The treasurer is Garrett D. Cooper, son of Frank H. Cooper of the Siegel-Cooper Company, New York and Chicago. Another son, William H. Cooper, is the vice-president. It is positively stated that there is no affiliation between the Household Company and the Siegel-Cooper Company. It is understood that the new Household management has adequate capital with which to push the business, in addition to the money paid in acquiring the \$275,000 capital stock.

SOUTHINGTON CUTLERY COMPANY.

AT the annual meeting of the Southington Cutlery Company, Southington, Conn., held July 28, C. E. Jennings of C. E. Jennings & Co., New York, was elected president of the company for the ensuing year, he recently having been chosen a director. J. H. Pratt of Southington, connected with one of the banks there, was elected a director to fill a vacancy caused by the resignation of M. C. Ogden, Mr. Pratt later being elected treasurer of the company. J. H. Baldwin is secretary, as heretofore. It is the intention of the new management to push the business more energetically, and make more goods in each department. In most of the lines they have plenty of orders, and in others new business will be sought. C. E. Jennings & Co., New York, will carry a stock of goods for the trade in this territory.

THE TRAVELING SALESMAN HIS METHODS AND CONTROL

CHAPTER XXVI.—CITY SALESMEN. THE HOUSE SALESMAN.

BY SAMUEL MASTERS.

CITY salesmen's routes should be so laid out that each man covers a definite section of the city, thus enabling him to cover the most ground with the least traveling. At the same time it will be found that one salesman cannot sell certain dealers in his section while another can secure a good trade from them. It logically follows that the man who can get the most orders and induce the greatest amount of friendliness for himself and his house is the man who should be sent for the business. When one salesman has had a dealer upon his list for a year and has not secured a fair trade it is time to try another. Often when the dealer has no personal objection to the man who calls upon him he has a decided preference for another house or its representative, and a new salesman may be able to effect a change.

Routing Clerk's City Work.

The routing clerk's work in the city trade differs in detail from his work on country routes mainly in the fact that he can get into closer relations with the salesmen, and can secure results with less trouble. He should secure from the salesmen daily reports of their movements and check them upon the customers' cards, and insist that each dealer be visited at least once in two weeks. When the sales show a decided falling off he can personally interview the salesman and hear his reason for the loss of trade, or can refer the matter to the sales manager for his attention. Often a few words from an acquaintance of the dealer, who is a member of the jobbing firm, will induce the dealer to restore his custom.

Frequent Comparisons of Value.

It is a good idea to make quarterly statements showing the calls and sales on the different city routes and making comparisons with previous periods. This gives an opportunity for noting changes in the amounts of sales, and a customer who is drifting away can be brought back before a rival has gotten him fairly weaned away. If there is any question in dispute it should be settled without delay, and there is no reason why anything of the kind should not be adjusted promptly in view of the ease with which the customer can be consulted and an understanding reached.

Suburban Trade.

Cultivating the suburban trade requires judgment. There are some rural dealers who should be visited regularly. Others who call upon the jobbers should only be seen at rare intervals, and then simply in a friendly way, in order not to disturb the trend of affairs. Many of the suburban dealers prefer to go into town to do their buying, and if their trade is too actively solicited will transfer their custom to a jobber who does not thus trouble them.

The House Salesman.

The jobber's house salesman, who cares for the country customer when he comes to town, waits upon the city trade and has general care of the city orders, is a valuable aid to the city salesman. In some of the jobbing houses the country customers are attended to by the mail order department. In others, where the business is not of sufficient magnitude to warrant the creation of a department to care for the local and personal trade, the mail order department has charge of all the business outside of that done through the road salesmen, but in any house with local and suburban trade enough to keep two city salesmen busy it will pay to assign a house salesman, who should have special charge of this business. He should be stationed near the door, so that strangers would naturally approach him, and in order that the local tradesmen coming in to do business may not interfere with the current of business in the other departments.

House Salesman's Duties.

This man waits upon all people who come in to buy or get prices; he answers telephone inquiries and takes orders by telephone; he knows in what part of the city the salesmen are at work, and when need arises catches them by 'phone and sends them where their presence is required. He makes all charges of goods and sees to it that bills are properly and promptly sent. When a local customer is behind in his payments he sees that the account does not grow until settlement is made; he attends to the exchange trade with the other jobbers in the city.

When the city men are in they assist him. When several customers are in at the same time there should be some one among the order clerks upon whom he can call for help. He should be in close touch with the foreman of the packing room and the shipping clerk, and be able to get instant service, that the office may be kept cleared of persons waiting for goods, and in general have every facility needed for the prompt execution of the local and personal business.

The smaller the city and the smaller the jobber's local business the less the amount of work the house salesman has to do, but in any jobber's establishment there should be a good man detailed for the care of the local trade and to wait upon visitors from out of town, and he should be given all the authority and support necessary for the prompt transaction of business.

Exchange Trade.

In some cities that support several jobbing houses there is an arrangement made between the jobbers by which they agree to sell each other goods needed for customers' orders, but which they may be out of, at a stated percentage above the cost—say 10 per cent. This enables all to pick up in town goods which they may be temporarily out of and supply to their customers without delay. The profit on the exchange sales is not very much above the cost of the goods and their handling, but each party to such an arrangement finds that it pays him to participate in it, since it is greatly to his advantage to fill orders with the least possible delay, and a reduced profit upon the goods with his customer satisfied is much to be preferred to sending a back order notice with an indefinite promise as to shipment, or canceling the missing items and sending his customer elsewhere for the goods. So he is very willing to supply his neighbor in need, taking care not to sell him goods of which his own stock may be running low or of which he has the exclusive sale in the territory. This trade is handled by the city department, and is cared for by the house salesman, whose duty it is to see that the other jobbers do not overstep bounds and get in this way goods for their stocks that are hard to procure, or are given the advantage of any inside or special discounts, and thus learn that they are not on the bottom as to the price they pay on purchases from the manufacturer.

Exchange Trade a Desirable One.

In former years, when the general profit on Hardware was greater than at present, the jobbers did not particularly desire large sales on an exchange basis, and complaints were not infrequent that the jobber's exchange buyer could not secure prompt attention, and was told that goods were sold out when such was not the case. Latterly the feeling has changed and the pick-up men from rival houses are given the best of attention and the sales are closely watched to see that the goods sold exceed in amount those bought in this way. Many jobbers will gladly agree to sell a complete stock of goods to a retailer at 10 per cent. above the published cost of the goods of all kinds, and a 10 per cent. basis is considered to yield a desirable profit on an exchange trade. Every morning the exchange buyers are served, and again in the afternoon when goods are wanted in a great hurry, and they must be waited upon promptly and gotten out of the way. It is not a good thing to have an employee of a rival house waiting about where sales are being made.

Sales to Employees.

To this department also comes the personal sales to employees of the store, which are made upon a basis of

10 per cent. above the published costs. To guard against abuses of the privilege of buying at a reduced cost, employees are in some establishments required to get orders from one of the department managers, but they come to the house salesman to be filled, and are a source of considerable annoyance in a big establishment, particularly if the rules forbid the men going to stock to get the goods they want upon their orders.

PUZZLES IN HARDWARE.

TO some of the complications, ambiguities and perplexities of the Hardware trade reference was made by Charles H. Ireland in his interesting paper, read before the Southern Hardware Jobbers' Association at their recent meeting at Saratoga. Although the subject is touched upon in something of a light vein attention is thus directed to many things, some of which indeed might be corrected and simplified, which call for exceptional knowledge on the part of Hardware merchants:

One of the greatest troubles I have in my business is to keep up with the size of Tinware, the weight of Tacks and the length of Trace Chains. If a man quotes me the price of a Bucket, the question which first arises is, does this man mean for a 6-quart Bucket, a 5½-quart, a 5¼ or a 5 quart?

Does a man who quotes me Frying Pans mean a 9-inch full, medium or scant?

If Tacks, does he mean full weight, half weight, quarter weight, one-sixteenth weight or one-thirty-second weight? They all quote by the dozen.

Does a dozen Brass or Iron Shoe Nails mean 2, 2½ or 3 pounds to the dozen—the packages all being the same size?

If a man quotes me Trace Chains, does he mean Eastern or Western, American or English, German or Hindoo sizes?

When he says No. 2 Wire, does he mean No. 2 gauge, No. 1½ or No. 3?

When he says 10 links to the foot, does he mean there are 10 links to the foot or does it lack 10 links of making a foot?

When he quotes a No. 0 Cow Chain, does he mean it lacks a figure of being what it appears to be?

When he quotes a 4 to 5 pound Axe, does he mean 4 to 5 pound Axes and 8 to 4 pounds to the dozen?

When he quotes No. 2 Axe Handles, does he mean there are two in the dozen you can use and the balance you must take your chances on?

When a No. 7 Stove, does he mean 7-12, 14, 16, 18, 20 or 22 inch oven, and when that is determined does his measurement mean on the bottom, inside or outside, on the floor, or between the bulge of the door, on top or including the shelf?

Do Sad Irons mean stamped or actual weights? Does Stove Ware mean regular or eccentric?

Do his Table Knives have one, two or three rivets, are the handles hung on, glued on or flung on, are the handles half or two-thirds length, are the blades ditto?

Is the stag on the handles of Pocket and Table Knives that which grows on a deer's head or in dear Mr. Armour's bone factory?

Does a box of full weight Tin mean 190, 200, 216 or 220 pounds?

Does "redipped" mean in water, acid, lead or tin coating?

Does half-and-half Solder mean percentage of tin and lead in its composition, or that half of what he charges me for it is his profit?

When he quotes Manila Rope, does he mean part Sisal and Manila, Sisal and Jute, and what proportion of each?

If Rubber Belt, does he mean 18, 20, 22, 24, 26, 28 or 30 ounce duck? Does he mean Para rubber, old gum shoes or horse hide, gas tar and tallow?

Does the measure of a Lawn Mower mean length of cutter bar or the curve of the cylinder?

Does a Bolt mean United States or Manufacturers' Standard thread?

Is his Nail Hammer No. 1 to ½ 16 or 15 ounces, his No. 2 Hatchet ¼ pound short in weight and ½ inch in length, or is it full?

Are Steel Hammers converted or Crucible Steel—both branded alike?

Is his pure Putty pure, superior pure or extra superior pure?

Will his 48-gallon barrel of oil stretch to 55 gallons capacity, or if by weight, does he mean to include the barrel in the weight?

These are but a few items of what the average Hardwareman has to carry around with him day and night, chained to him as a prisoner without hope. Aye! which he dare not release, for if he should miss its presence for even a short time his account current at the end of the year would stand as an accusing demand to tell of the days when the prisoner was not in chains. Does any one wonder that Hardwaremen grow gray and old? Does any one wonder why they do not grow rich and retire as other men? They haven't time to do either. The mill must grind, the hopper demands more grist, and our noble trade papers stand as public benefactors to shovel in the grain and furnish the information lest any escape.

PRICE-LISTS, CIRCULARS, &c.

THE ALLITH MFG. COMPANY, 122-124 South Green street, Chicago, Ill., issue a catalogue and price-list, devoted to Door Hangers, Store Ladders and Specialties. Illustrations show the company's Round Track Hanger, adapted to barn and warehouse doors, weighing from 1000 to 2000 pounds, according to the distance apart the track supports are placed. Light Hangers are suitable for doors and shutters weighing up to 400 pounds. The tubular track permits the doors to be swung out. The catalogue also shows Automatic Self-Closing Fire Door Hanger, Automatic Self Closing Drop Door, Store Side and Overhead Trolley Ladders, Merchandise Carrier, &c. The company state that the goods include the highest mechanical skill and the best materials in their make.

THE BUHL STAMPING COMPANY, 206 West Larned street, Detroit: Catalogue of their new line of Royal tubular lanterns. It contains some features not usually found in catalogues of this kind, notably a number and code word for every different style of lantern, complete statistics as to measurements and weights, which are especially useful for the export trade, and a table for converting these figures into metric system. They will be glad to mail a copy of the catalogue to any dealer who is interested in these goods.

THE CORBIN SCREW CORPORATION, New Britain, Conn.: Circular No. 1, giving revised list prices on Wood Screws and list prices on Set and Cap Screws, with discount sheet.

AMERICAN SCREW COMPANY, Providence, R. I.: Revised list, July 22, on Iron and Brass Screws, with discount sheet on Screws, Machine Screws, Tire Bolts, Rivets, &c.

BARNEY & BERRY, Springfield, Mass.: Catalogue of their well-known line of Ice Skates for the season of 1903-1904. They have been making Skates for 35 years, and their assortment embraces all the standard styles and sizes and many specialties. For the coming season changes and improvements have been made, and the manufacturers state that the line is more complete and attractive than ever.

E. H. STAFFORD & BROS., 18-20 Van Buren street, Chicago: Catalogue of Office Desks and Furniture. They call particular attention to their special Desk No. 20, which is 48 inches long, 30 inches wide, 48 inches high, and weighs 250 pounds. This Desk combines many conveniences, including, as it does, a number of large drawers of varying size, a center drawer, a number of open and closed pigeon holes, one letter file, two legal blank drawers, one document file, one card index drawer, one small drawer and two large book stalls. The Desk is made of good material and nicely finished.

BUTLER BROS., Chicago: An interesting little booklet, entitled "Getting Out of Business All There Is in It." This contains a few earnest words for the "many merchants who feel that they are 'doing pretty well' and are accordingly apt to let well enough alone." They remark that letting well enough alone is a pretty good motto to forget once in a while, as no merchant will get his full share of the prevailing prosperity who does not hustle for it. "The Better Way" is the title of another booklet which the company have lately issued, in which suggestions are given as to how merchants can keep themselves busy throughout the year, without "dull seasons." A third booklet, "More Business," tells about the Butler method in general and bargain departments particularly.

M. C. HANTON, 103 Chambers street, New York, has been appointed the New York representative of the Northern Hardware Specialty Company, 1401 North Broadway, St. Louis, Mo. This company manufacture Favorite Window Cleaners in five sizes, 10 to 18 inches, made of galvanized steel and rubber; Peerless Floor Cleaners in four sizes each, of both ¼ and 3-16 inch rubber, with backing of hard wood blocks, in lengths of 12, 14, 16 and 18 inches each; and the Peerless Bar Counter Cleaner, for cleaning and drying stone steps, counter tops, etc., with rubber edge and hard wood back, 12, 14 and 16 inches in length. Another feature in this line is the Peerless Dust Pan 8½ x 11 inches in size, having galvanized steel pan with oak back and handle with support attached to blade to hold the pan in proper position to receive dust.

Letters From the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Selling Wire Cloth.

From a Michigan Merchant: I think the rule I use much simpler than that given by your Baltimore correspondent in your issue of July 9. In figuring Wire Cloth at 2 cents per square foot my method is to take half the width (any size), which gives the selling price per yard. For instance, in 28-inch Cloth there are 7 square feet to the running yard. At 2 cents per square foot this amounts to 14 cents, corresponding to half the width, which is 14 inches.

From Another Merchant in Michigan: Noticing in your issue of July 9 "Rule for Selling Wire Cloth," I offer the following rules, which I hope will be beneficial to your readers:

Rule 1. The price per lineal foot at 2 cents per square foot is equal to one-sixth of the width.

Thus:

1 lineal foot of 24-inch cloth equals one-sixth of its width, or 4 cents.

1 lineal foot of 36-inch cloth equals one-sixth of its width, or 6 cents, &c.

Rule 2. The price of 6 lineal feet equals its width.

Thus:

6 lineal feet of 24-inch cloth equals its width, or 24 cents.

6 lineal feet of 36-inch cloth equals its width, or 36 cents.

This last rule is based on the first, but is much easier when calculating large quantities.

From an Illinois Hardware Merchant: We sell Wire Cloth at 20 cents per pound, or $1\frac{1}{4}$ cents per ounce. If a customer comes in the store and wants from four to ten pieces of Wire Cloth, all of different lengths and widths, we cut it off, roll it up and throw it on the scale. At 20 cents per pound it equals exactly 2 cents per square foot. We find that the boys in the store are not as liable to make errors when selling Wire Cloth by the pound as when figuring the number of square feet in a purchase.

Echoes of the Church Bell.

From an Indiana Merchant: I have noticed the Church Bell episode in *The Iron Age* and have read with considerable pleasure and interest the different letters which you have published on same, some of which are very interesting.

In the first place the Building Committee made a mistake in buying the Bell from parties outside their own town, for the church is peculiarly liable to the merchants of its own town. One reason is that she in almost every instance expects support in one way or another from the merchant. In the second place, her mission is to draw people to her and to induce harmony between the world and the church. From my standpoint the Building Committee made a great mistake in buying the Bell away from home, even if they saved money on it.

To the second question I would say that the retailer ought to have been better posted in his business than to have gone to a jobber for a Church Bell. Church Bells are not carried by jobbers in stock, and the manufacturers of Church Bells do not expect jobbers to deal in them, nor do they solicit their orders, so far as I have been able to learn. The retailer made a mistake in going to the jobber instead of to the manufacturer. The jobber should not be held responsible, for the fact that the Bell was purchased from the catalogue house. It was a mere matter of business on his part, and if he only had a slight advance over cost, this was purely a legitimate business transaction. But I would censure the jobber for not informing his customer that he would be able to do just as well with the manufacturer direct and be more sure of securing the order for the Bell, but the chances are that the jobber was ignorant of this fact, for the reason that, as before stated, jobbers do not commonly deal in Church Bells, and it may have been a matter of accommodating his customer in offering to furnish it at all.

In answering the fourth question, if the manufacturer makes no pretense at selling Church Bells to the jobbing trade, so that they can make a margin over the price at which the manufacturer would furnish to the retail trade, then the manufacturer was right in giving the catalogue house the same price as he did the jobber, but if the manufacturer does pretend to furnish the jobbing trade then he was wrong in making the catalogue house the same price.

I have had a singular experience in the Church Bell business myself, and I notice by some of the letters that I am entitled to no more sympathy than some other Hardware merchants. I have been in business 20 years and have waited on approximately 25 church committees for Church Bells and figured on making 10 per cent. Out of all the propositions that I made, to the best of my knowledge, I received but one order. I am of the opinion that Church Bell manufacturers make the same price to the church committees or to any individual that wants a Church Bell that they will to the retailer, catalogue house or jobber. I firmly believe that it is a matter of making a sale, no matter who the customer is or what he is.

Another Pull at the Bell Rope.

From an Illinois Merchant: In regard to the Church Bell controversy, allow me, as a reader of *The Iron Age* for the past 30 years, to take a slight pull at the bell rope.

In the first place, I will state that I agree with a number of your correspondents in that the Bell should have been bought by the Church Committee at home. All the competition they should have asked should have been confined to merchants at home, where the church gets its support. Catalogue houses throw nothing into the contribution box on Sunday, buy none of their ice cream and cake on festival days, eat none of their "lonely oyster" soup at church suppers. When the church is a little short on the minister's salary, will this same committee write to the catalogue house for a small donation to help them out? Guess not! They approach the "meek and lowly" Hardware merchant, among others, with the empty coffer; he hesitates a moment, perhaps, but the soft voice and pleasing smile of the solicitor (often a nice young woman and leader of the choir) touches him. He weakens and drops his coin in the box, soliloquizing as he does so, "The Lord loveth a cheerful giver." It is well.

Now just a word regarding catalogue houses, which seem to figure prominently in this wordy controversy. We see accounts frequently in your valuable paper of the meetings of jobbers, or manufacturers and jobbers, and at such places and on such occasions a general good time is had. They organize into what an outsider would term a "general admiration society," resolve and re-resolve, then adjourn. If the sole object of these meetings is to have a good time they certainly have it. As they pay for the music they are entitled to the privilege of dancing to their hearts' content.

BUT HOW ABOUT THE RETAILER?

Where does he come in? If the prime object of these meetings, as has been suggested time and again, is to promote trade, should not he be a prime factor in these discussions—as the final distributor? They sow and cultivate the crop; he is expected to harvest and garner it, and return their per cent of rent.

When the retailer asks that the manufacturer protect, or try to protect, him against the catalogue house the reply is, It is impossible. If one factory refuses to sell them, another steps in and fills the order. If that is so, how do you manage to control the dozens and hundreds of jobbers on prices? The unanimity of prices from jobbers goes to show that something, at least, might be done in that direction if the same vigilant course were pursued regarding catalogue houses. The argument that the catalogue house often sells ten times the amount of goods the jobber does in certain cities cuts no ice, for if the catalogue house was out of existence these same customers would be supplied by the retail dealer, and hundreds of worthy people would be given employment at living wages, instead of the cutthroat methods now in vogue by which a few houses cut, slash and ruin legitimate trade to the detriment of regular dealers, who use their profits to build up towns and cities all over the

country. The catalogue house absorbs the wealth of the country and invests it in interest bearing securities instead of substantial improvements, compelling the wage earner to toil for them for a mere existence that they may revel in luxury. Can such a state of affairs continue to exist and the prosperity of the country be upheld?

MINNESOTA RETAIL HARDWARE ASSOCIATION.

THE MINNESOTA RETAIL HARDWARE ASSOCIATION, which has a larger membership than any other State Hardware association, having more than 500 members in good standing, are making an earnest effort to pass the 600 mark by the time the next annual convention is held in February. They are accordingly energetically canvassing the non-affiliated merchants of their State, calling their attention especially to the inducement which they have to offer in the way of cheap fire insurance. M. S. Mathews, secretary, Boston Block, Minneapolis, will be pleased to furnish application blanks to any merchants desiring to identify themselves with this progressive association.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses:

FROM FRY & HUDSON, Camden, Tenn., who have succeeded Claude Hudson & Co. in the Hardware, Stove, Agricultural Implement and Wagon and Buggy business.

FROM HUGHES & AMUNDSON, Stanton, Minn., who have bought the Hardware stock formerly carried by Wallace Gregson, and added it to their line of general merchandise.

FROM WASHINGTON HARDWARE & SUPPLY COMPANY, Washington, N. C., which has been organized by John H. Fulford and Carl H. Richardson. The company will carry a general line of Shelf and Heavy Hardware, Wooden and Willow Ware. They expect to have their store ready for business by September 1.

FROM FRANK E. HARDER, Lock Haven, Pa., who handles Guns, Fishing Tackle and a general line of Sporting Goods.

AMONG THE HARDWARE TRADE.

L. E. Mannon has lately succeeded C. H. Tolle in the Shelf and Heavy Hardware, Stove, Paint and Sporting Goods business in New Boston, Ill.

Plowman Hardware Store of Elmira, N. Y., has recently moved into a new store, which was built and fitted up especially for their occupation.

J. W. Karas has purchased the Hardware and Agricultural Implement business of W. T. H. McClanahan, Elk Creek, Neb.

C. L. Cross & Son have succeeded C. E. Evans, dealer in Hardware, Farming Implements, Hardware, Stoves, Tinware, Sewing Machines, Buggies and Wagons, &c., Thayer, Kan.

A. F. Meyer of Hastings, Neb., has disposed of his Hardware, Stove, Paint and Sporting Goods business to J. H. McGrath Hardware Company, who will take possession September 1, after enlarging the store and making other improvements.

Lancaster Hardware Company, Lancaster, Texas, have been incorporated with a capital stock of \$20,000 by L. F. White, H. E. White, R. R. Ellis and S. L. Randlett. The lines carried embrace Shelf and Heavy Hardware,

Stoves and Tinware, Agricultural Implements, Sporting Goods, &c.

Young & Sweet have succeeded Canfield & Young in the Hardware, Stove and Plumbing business in Woodbine, Iowa.

THE EXPRESSIVE SHOW WINDOW.

BY FRED. R. PECK.

LET the show window be expressive; make it talk "right out loud." That is the meat of the whole question of show window display. The show window space is the most valuable space you have in your store, from the real estate point of view; it's the frontage and should pay interest according to its value. It can only be made to pay, except as storage room, when it brings you in trade. It is not, as a good many seem to suppose, just to look pretty. It is to attract buyers to your store. I do not intend by this to convey the idea that attractiveness is not a necessity in show window display. It is a necessity; but with attractiveness there should be effectiveness, and the latter is the more important.

It Should Suggest.

The window should suggest to the passerby either something extraordinarily good or something extraordinarily cheap. If the article displayed is supposed to sell on its price the price should be low—so low as to attract attention—and then the article should be neatly labeled with this price. If it is to show something of extra quality it should be so labeled as to call attention to these advantages, and it is more effective to call attention to the advantages by insinuation rather than directly. The passerby sees the point without realizing that you are trying to hammer it into him. For instance, if it's a Jack Knife, label it "The kind your grandfather used to have." Our grandfathers' Knives are always talked about as having been of "good stuff." If it is a Gasoline Stove Oven label it "The kind that saves you fuel; fuel is money." Economy catches the average man or woman.

What to Put in the Window.

A very good way to start a show window, to figure on what to put into it, is to stop and think, What can I put into that window to interest that woman who is going by? Don't say to yourself that nothing but a millinery window would interest her, for the chances are three to one that you stand a better chance of selling her a Roaster, if properly displayed, than the milliner does a hat, no matter how attractively displayed.

We are not all of us born show window artists—some men are; but we can all improve upon our natural endowments along this line by cultivating them and attempting to learn something. No trade furnishes better advantages or facilities for a nicer show window than the Hardware trade. No trade furnishes the material for shabbier windows.

Brevity.

Remember in dressing a window the old adage, "Brevity is the soul of wit." This applies to show windows as well as to conversation. One single pair of Shears neatly displayed in a show window, with attention called to its superior points, is more effective and a bigger money maker than a window filled with a heterogeneous lot of articles from which the passerby gets an idea of everything in general and nothing in particular. In the one case you have possibly displayed a large number of articles with no impression conveyed of anything in particular, while in the former case you have conveyed a favorable impression of at least one well paying article to some one interested in that article.

Tin Pan, Stove Pipe Dummies.

I take no stock whatever in these Tin Pan, Stove Pipe dummies or figures constructed in the show window, for the simple reason that they do not help to sell anything. If you wish to display your ingenuity along this line construct these objects inside of your store and show them to your customers as curiosities, but don't

lumber up such valuable space as a show window with them. You might as well put one behind the counter in place of one of the clerks. They are simply curiosities and their value should be rated accordingly.

A Crowd is of No Value.

Novelties, such as moving objects, &c., in a show window are good for this much—they draw a crowd. When you say that you have said it all. A crowd in front of your store window is of no more value to you than one in front of your neighbor's, *unless* you have impressed them, by your display, with some other feature of the articles shown than the mere novelty of their display.

Don't Be Afraid of a Little Expense.

One error which most Hardware dealers make is that they are too easily frightened at a little expense put into the window. It is by no means necessary to have a window expensive in order to have it look nicely, and frequently a little crêpe paper adds dollars to the value of the article displayed—to its appearance. Pocket Knives displayed on a little red plush look 500 per cent. better than on the bare floor of the window. Don't be afraid to lay out enough on your window so that you can get benefit from it in proportion to its value. The majority of us spend more money annually on our offices than we do on the show windows, but there's a great deal more money made, there is a larger rate of interest, from that invested in the window.

Clean Windows.

It would not seem that it is necessary to mention that the window should be changed often, at least once a week, and that it should be kept scrupulously clean. You may have ever so elegant a display or ever so attractive a window, but if the glass itself is even slightly dirty or streaked you have lost a large part of the effect. It is actually restful to look at a nice clean window; the mere glisten of the glass is attractive and adds as much to what the window contains as a dirty window detracts from the same. A nice display in a dirty window is like a handsome woman in a slovenly dress, we have more disdain for her than for an inferior looking woman in the same dress.

Show What is Advertised.

Let the window be an object lesson of the newspaper ad. as far as possible. Make your window a demonstration of what your newspaper talks about. Your newspaper can tell the people of what you have that is especially good or cheap, and your show window can prove it. In this way you "clinch the deal," provided in your window you emphasize the same points which you have in the paper.

The Window Artist.

Finally, show window dressing is not necessarily a work for the "boss" or head clerk. Your best man may be a superior clerk and still be a very inferior window artist. Learn who your most artistic man is in this line; plan his work for him along practical lines so that the window shall express what you want it to, and then allow him to do this work—to become acquainted with the work and the window.

Do not think that because you know more about your business than your cheapest clerk you are necessarily a better window dresser. Learn who your best man is and then calculate to have him see to this work constantly and feel that he is responsible for its appearance. You may rest assured that he will take pride in it.

At all times in dressing your window keep our first statement in mind to

Make Your Window Talk Out Loud.

GEM CUTLERY COMPANY.

MARTIN ZINN AND ARTHUR S. ZINN, brothers, are now the proprietors of the Gem Cutlery Company, 34 Reade street, and factory, 670-680 Hudson street, New York, manufacturers of the New Gem Safety Razor. The present proprietors have always been part owners of the business at the factory end, and have now simply taken over the entire organization, the selling as well as

the manufacturing department. They are prepared to fill orders promptly, and hope to merit a continuation of past favors from the trade.

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BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE,
NORFOLK ST., LONDON, W. C., July 25, 1903.

The Week's Hardware Trade.

TRADE continues slack and unsatisfactory. There are one or two factors operating adversely. In Scotland the depressed state of the ship building industry is having its effect upon the mining branches; in Lancashire the temporary paralysis of the cotton trade caused by the dearth of raw material is having a most serious effect upon effective demand, upon credit and trade generally. On the other hand, the agricultural districts appear to be doing fairly well, and there has been a substantial recovery in the demand for Sporting Guns for the Scotch and Yorkshire moors. Orders from seaside towns at the present time, take the form of Metallic Bedsteads and Plain Enameled Ware. There is more doing in Builders' Brass Foundry, but Builders' Ironmongery is rather slack.

On overseas account, South Africa is still buying Hardware, Cutlery, Tubes and Galvanized Sheets, but recent indents show a shrinking tendency. This is due to overstocking and to the hardness of the money market. There is a brisk demand from China and India for yellow metal, while copper sheets are being bought freely by Egypt and India.

Advance in Cast Iron Goods.

The Rhenish-Westphalian group of the Association of German Iron Founders has raised the prices of all kinds of Cast Iron Ware, as well as of Builders' and Engineers' Castings, by 1 mark per 100 kg., and repair parts by 3 marks per 100 kg., on account of the continued rise in the price of raw materials.

The Hardware Exhibition.

During this week there has been a Hardware exhibition at the Agricultural Hall in London, which is strictly closed except to members of the trade, who must obtain admission cards from actual exhibitors. This is very exclusive, but it means that all who go there have some special purpose in view, and futile conversation and endless chit chat with irresponsible persons is eliminated. In going through the exhibition I have been struck with the great shrinkage in American representation. It is to be hoped that American manufacturers, in their own interest, will next year take more space and show their goods. I am aware that expositions have become a weariness to the flesh to the average American exhibitor, and small blame to him. On the other hand, the almost complete absence of American Hardware goods at this exhibition does not redound to the credit of Americans. I only observed about half a dozen American firms in the whole building.

NEW LAWS RELATIVE TO BUYING AND SELLING JUNK.

THE Legislature of New York at its last session passed an act to regulate the junk business and to require persons engaging in such business to procure a license. This act became a law May 5, 1903, and was effective July 1. This act makes it unlawful for any person, copartnership, &c., to engage in or continue in the business of buying or selling old material, which business is designated as junk business, unless such junk dealer shall have obtained a license from the Mayor of the city, President of the village, or Supervisor of the town in which such place of business is located. The cost of this license is \$5, and the term for which it is issued expires June 30 of each year. This law is designed to prevent, as far as possible, the selling of stolen property.

Section 3 provides that on purchasing any pig or pigs of Metal, Copper, Wire or Brass Car Journals such junk dealer shall cause to be subscribed by the person from whom purchased a statement as to when, where and from whom he obtained such property; also his age, residence by city, village or town, and the street and number thereof, if any, and otherwise such description as will reasonably locate the same, his occupation and name of his employer and place of employment or business, which statements the junk dealer shall at once file in the office of the Chief of Police of the city or village in which the

purchase was made, and, otherwise, in the office of the Sheriff of the county in which made. Section 4 says every junk dealer shall, on purchasing any of the property described, place and keep each separate purchase in a separate and distinct pile, bundle or package in the usual place of business of such junk dealer, without removing, melting, cutting or destroying any article thereof, for a period of five days immediately succeeding such purchase, on which package, bundle or pile shall be placed and kept by the dealer a tag bearing the name and residence of the seller, with the date, hour and place of purchase and the weight thereof. Section 5 provides that each violation of this act, either by the dealer or his agent or servant, on each false statement made in or on any statement or tag above mentioned, shall be a misdemeanor.

An amendment of the penal code, enacted at the same time, makes it a misdemeanor for such dealer to receive or purchase such material from any child under 16 years of age, the latter amendment becoming operative September 1, 1903. These laws apply to all the counties in New York State, and certified copies may be gratuitously obtained by communicating with the Secretary of State, Albany, N. Y.

TENIH ANNUAL SPORTSMEN'S SHOW.

THE tenth annual Sportsmen's Show will be held at Madison Square Garden February 19 to March 5, 1904, inclusive. The floor plans for the division of space will be issued shortly. Following the suggestions of exhibitors at former shows, it has been decided to adhere more closely for the coming show to the principles that won for the earlier exhibitions so great a degree of popularity among visiting sportsmen and exhibitors. Sports of the woods and water, with Gun, Rifle and Powder, will be exploited, and every inducement will be given to manufacturers of Sportsmen's Supplies, Guns, Rifles, Revolvers, Fishing Tackle, Camp Equipment, Boats, Launches, Canoes and Sailing Craft to make extensive exhibits of their product and, together with their sales people, to be present at the exposition.

For the show of 1904 the arrangement of the garden's interior will make available more than 1000 square feet of additional floor space and will place at the disposal of exhibitors for the purpose of demonstration much additional area that was devoted wholly to entertainment purposes last year. The center of the arena will be given up to the lake, but the island will be smaller and more picturesque in appearance and designed for the occupancy of certain species of game animals, without any view obstructing inclosure. The lake will have a clear length of 260 feet and an average width of 50 feet. Certain periods will be set aside each afternoon and evening for various water sports, but aside from these restrictions the lake will be designed and intended primarily for demonstrations by marine exhibitors. Provisions for exhibitors of this class will, it is believed, find considerable favor with those who have hitherto been forced to restrict their exhibits to floor space only, and, in some instances, where working demonstrations of marine engines was desired, to such accommodations for the purpose as they were able to secure outside of the building. Other leading features so far determined upon will be fly casting, water games, Rifle and Revolver shooting, game birds and animals, camps and guides, Indians and Indian products, and possibly trap shooting, if this detail can be satisfactorily arranged.

In the near future floor plans of the garden, as arranged for the coming show, together with rules governing exhibitors, will be forwarded to all prospective exhibitors. Full details may be obtained by addressing the Executive Committee, Sportsmen's Show, 1123 Broadway, New York.

O. LINDEMANN & Co., manufacturers of Bird Cages, have lately removed to their new factory and office, 35 and 37 Wooster street, New York, the former quarters at 81 Beekman street having become entirely too small for their increased business. This concern have been established for 40 years, 24 years of which were spent at 254 Pearl street, from which they moved in 1887 to the quarters in Beekman street just vacated.

MISCELLANEOUS NOTES.

Roofpix.

William Astheimer, Hamburg, Germany, has established a branch in New York, at 45 West Fourth street, in charge of Hans Astheimer, his son, for the introduction of a roofing and paint material new to this country, the trade name of which is Roofpix. This is said to have been used abroad in government and private work for about 15 years. It is offered as a great improvement on the ordinary roofing paint, as the mixture will not run or drip even on the steepest incline or under the hottest sun, it is said, thus preventing the choking of gutters, &c. It is elastic and does not become brittle in winter, and can be used as a paint on various kinds of roofs, including old felt and metal roofs. It is also recommended as a coating for walls and as a protection against acid vapors. This paint like covering is also made in white and colors for various kinds of buildings, such as breweries, ice houses, exhibition buildings, country houses, &c., where black would be unsuitable or objectionable. A prepared roofing is also made by cementing together various thicknesses of roofing felt, as in the ordinary way, which is sold by the roll.

Wayne Lock Set Design.

Russell & Erwin Mfg. Company, New Britain, Conn., and 43-47 Chambers street, New York, have brought out the Wayne design in wrought bronze metal and wrought bronze plated builders' hardware for inside trim, in lock sets, push buttons, flush sash lifts, push plates, knobs, escutcheons. The design is Colonial in style, the escutcheons, knobs, &c., being in the form of a long oval with a beaded edge. They issue a booklet describing the various sets and combinations.

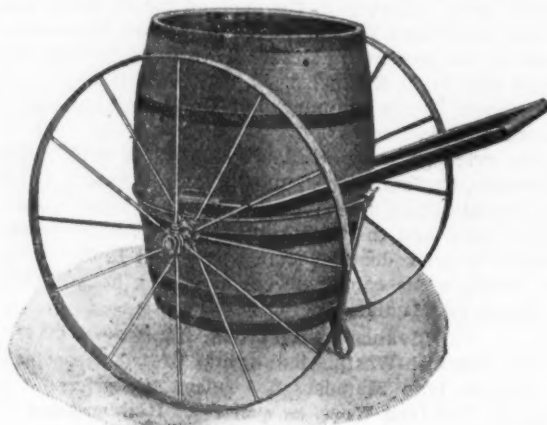
Crown Belt Food.

American Lino-Oil Company, Cleveland, Ohio, are marketing what they style Crown belt food, a trial sample of which they will be pleased to send to any interested party desiring it. This material is described as unlike the ordinary belt dressing as it does not remain on the surface to gather dust and dirt, though it has all the adhesive qualities necessary to produce an excellent dressing. It is perfectly clean, penetrating into the leather

gallon, and is put up in its primary condition in cans for trial containing 2 gallons; also in 5 and 10 gallon cans and barrels containing 30 and 60 gallons. Sample bottles will be furnished upon application, gratis.

Common Sense Barrel Cart.

The barrel cart shown herewith is offered by the Puffer-Hubbard Mfg. Company, Minneapolis, Minn. The axle, wheels and leg of the cart are held securely in place with a truss hoop, which passes around the barrel a little below its greatest diameter, and when tightened holds all the gear in place, and further strengthens the



Common Sense Barrel Cart.

hoopage of the barrel. By this plan a serious objection of bolting the gear to the barrel is entirely overcome. The axles are of steel, and form one continuous piece with the handle.

The Winchester Automatic Rifle, Model 1903.

The accompanying cut represents an automatic .22 caliber rifle, put on the market by the Winchester Repeating Arms Company, New Haven, Conn. It is a ten-shot, automatic, hammerless, take down rifle, adapted to a new .22 caliber rim fire cartridge, loaded with smokeless powder and the company's greaseless bullet. It is simple in construction and operation, and the company state that

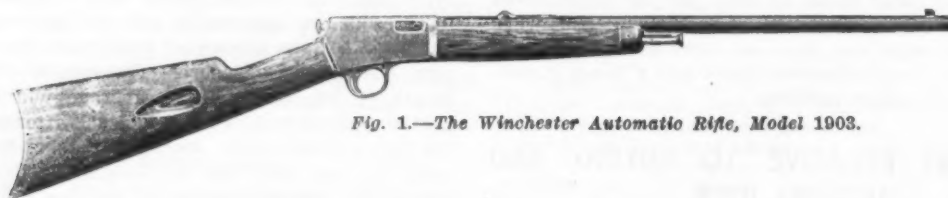


Fig. 1.—The Winchester Automatic Rifle, Model 1903.

and nourishing it. It is also said to be just as good for rubber, cotton and rope belts. It is entirely free from rosin, and prevents any slipping of the belt. The company advise us that the belt food is used in cement, flour and planing mills, brickyards and factories of every description, and that they have many letters from managers and superintendents expressing their unqualified satisfaction with its use.

Lubria or Water Lubricant.

Foot, Pierson & Co., 82-84 Fulton street, New York, are manufacturing "Lubria," otherwise a water lubricant. This is a new article for lubricating purposes in railroad and construction shops, by bridge and ship builders, bolt, screw and pipe works, and for machinery of all kinds. It is offered as a substitute for oil, soap water, &c. It is a liquid product, which dissolves instantly in water, making a white, oily, cooling fluid, which, in the proportion of 2 to 5 parts of "Lubria" mixed with 100 parts of water, is said by the manufacturers to give a perfect lubricant for all metal manipulations, such as drilling, turning, tapping, cutting, planing, milling, drawing, stamping, and, especially, automatic machine work. This solution, after water is added, costs about 3 cents a

It is the first automatic rifle on the market and the only automatic arm using the inexpensive rim fire ammunition. Special points claimed by the manufacturers are grace of outline, light weight, certainty of operation, ease of manipulation and novelty of action. There are no moving parts outside the gun which might injure the hands, catch the clothing, brush, &c., and being simple in construction it is not apt to get out of order with any ordinary use. After filling the magazine and throwing a cartridge into the chamber, all that it is necessary to do to shoot the ten cartridges which the magazine holds is

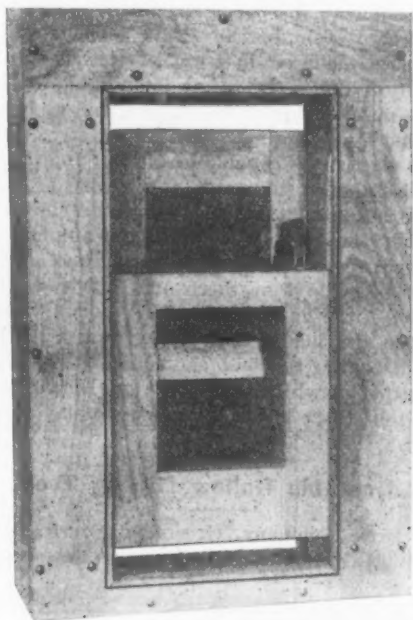


Fig. 2.—Winchester Automatic Cartridge.

to pull and release the trigger for each shot. The rifle can be shot as fast as the trigger can be pulled, and when a shot is fired the recoil from the exploded cartridge ejects the empty shell, cocks the hammer and throws a fresh cartridge into the chamber. The rifle is made with blued trimmings, plain walnut stock and forearm, not checked, and a 20-inch round barrel, fitted with open front and rear sights, and weighs about 5½ pounds.

Bell's Automatic Ventilating Window Lock.

The ventilating window lock shown herewith is applied on the top rail of the lower sash, to meet the side of the upper sash. This permits one or both sash being

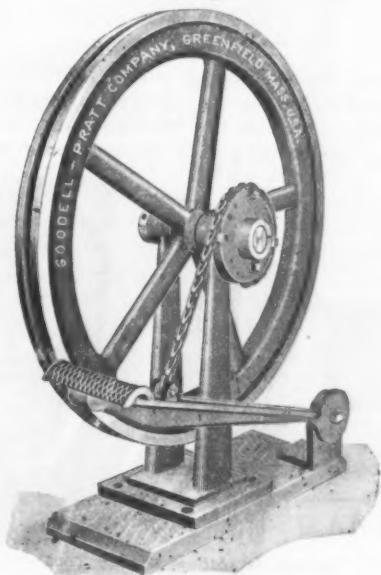


Bell's Automatic Ventilating Window Lock.

left open for ventilation at top or bottom, or both; or of closing both sashes and locking them, at whichever adjustment desired. Thus the window may be left open a little when retiring at night with safety. The lock is equally secure when both sashes are closed. The lock is offered by the Bell Mfg. Company, Norwalk, Conn.

The Goodell-Pratt Company's Foot Power.

The Goodell-Pratt Company of Greenfield, Mass., are just putting on the market a new foot power, as shown in the accompanying cut. This is designed for use in connection with various styles of polishing and grinding heads, and for other work of a similar character. The



The Goodell-Pratt Company's Foot Power.

machine can never get on a dead center, but is always ready to go ahead, and the treadle remains stationary when not being worked, while the wheel continues to revolve until its momentum has been expended. The face is turned up and grooved, making it adapted for

either a flat or round belt. The machine is well made and attractively finished, and weighs complete 65 pounds.

The Buhl Royal Tubular Lanterns.

A new line of tubular lanterns embodying the latest improvements in the art of stamping has just been placed upon the market by the Buhl Stamping Company, 206 West Larned street, Detroit, Mich., under the name of the Buhl Royal tubular lanterns. The example given in Fig. 1 shows one of the Buhl Hurricane lanterns of the Royal tubular type, with side lift closed, while Fig. 2 illustrates their Crown lantern of the same type, open, with side lift. The novel match box attachment is shown in connection with this lantern. All the dies and tools used in the construction of these lanterns were made in the company's own shops, and new presses of the latest design were built for their manufacture. In their new line of lanterns the manufacturers claim to have secured a number of advantages, including a greater volume of light



Fig. 1.—Hurricane Cold Blast Lantern, Closed.

Fig. 2.—Crown Side Lift Lantern, Open

Buhl Royal Tubular Lanterns.

obtained from a given consumption of oil, or equal light from less oil and a steady flame of unnatural size, resulting from proper circulation of air, and consequent perfect combustion. They burn uninterruptedly in all sorts of trying positions, either on land or water, and cannot be blown out or jarred out. The two-piece round tubes are ingeniously constructed without soldered joints or seams, and their shape and size are mathematically proportioned to conduct just the right amount of air to the air chamber. The wells, it is stated, hold from 20 to 30 per cent. more oil than those of other lanterns of similar construction. The body of the well and foot or base of the lantern are stamped in one piece from a single sheet of heavy tin plate and are retinned after stamping. Purchasers of these lanterns are offered the choice between the company's "Always Cool" top lift, and their new hinged side lift construction. Both constructions have the merit of simplicity, can be operated by anybody and will not readily get out of order. The Royal lanterns are finished in the best manner and made in a large variety of patterns and sizes adapted to every requirement. The globe is removable without disturbing the guards. The side lever raises the globe and locks it in place, either up or down.

THE PITTSBURGH SHOVEL COMPANY, Leechburg, Pa., have effected arrangements with Fred. H. Cozzens, 253 Broadway, New York, by which he becomes their Eastern sales agent. The company are manufacturers of Shovels, Spades and Scoops and Stamped Steel Specialties.

Automatic Colt Pistol, Calibre .32.

The accompanying cuts relate to the new automatic Colt pistol, pocket model, calibre .32, which is shown half size in Fig. 1, being introduced by the Colt's Patent



Fig. 1.—Automatic Colt Pistol, Calibre .32.

Fire Arms Mfg. Company, Hartford, Conn. In Fig. 2 the handle is shown to be hollow to inclose the cartridge magazine. This is inserted in the handle from below and is held in place by the magazine catch. When the catch is released the magazine may be drawn from the handle for recharging. The magazine is a tubular holder. Fig.

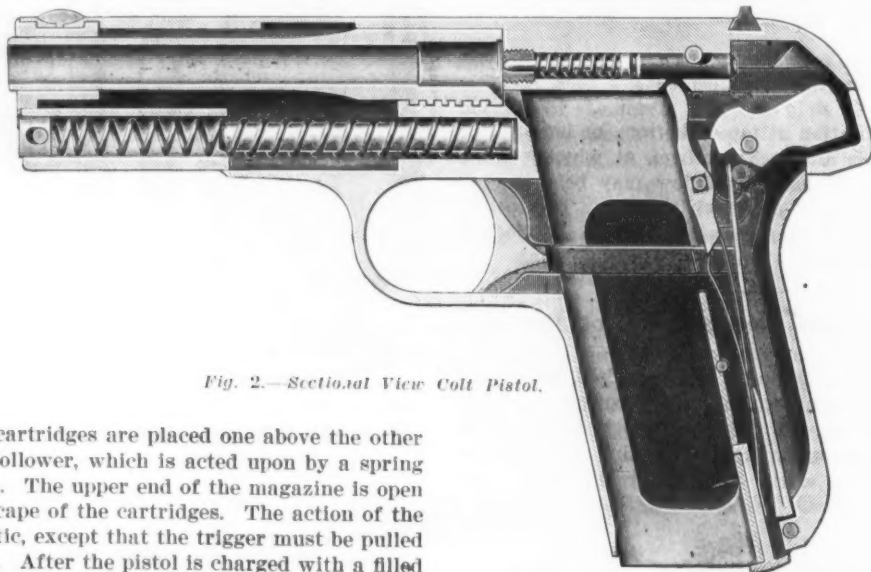


Fig. 2.—Sectional View Colt Pistol.

3, in which the cartridges are placed one above the other resting upon a follower, which is acted upon by a spring pressing upward. The upper end of the magazine is open to permit the escape of the cartridges. The action of the pistol is automatic, except that the trigger must be pulled to fire each shot. After the pistol is charged with a filled magazine, one opening movement is made by the hand.



Fig. 3.—Cartridge Magazine.

bringing the first cartridge into the chamber. On pulling the trigger the cartridge is fired, the empty shell is extracted, and a new cartridge is loaded into the chamber, all these operations taking place automatically without any manipulation of the arm. The automatic operation of the pistol is effected by the recoil of the moving

parts, and as a consequence the recoil is so absorbed in being utilized that it has no disturbing effect. The first shot can be discharged very quickly, as the pistol can be carried with perfect safety while the hammer is at full cock. The arm cannot be discharged unless the handle is firmly grasped when the trigger is pulled, as it is impossible to discharge the pistol unless the automatic safety is compressed. This consists of a small vertical piece mounted in front of the sear in the receiver. As the automatic safety is operated by the lower end of the main spring, it is positive, and as long as the main spring remains unbroken the safety is operative as long as the arm is capable of discharging a cartridge. This also acts as an indicator, for when the hammer is cocked the automatic safety projects, as shown in Fig. 1; but when the hammer is down the automatic safety is then forward and flush with the back of the handle. The point is made that there are thus two indicators showing when the hammer is cocked, and if it is desired to carry the arm loaded and the hammer at full cock in order to discharge the first shot quickly, there are two safeties, either of which is positive, one of which is automatic, so that there is no unnecessary delay in shooting quickly.

Adjustable Hollow Milling Tools.

Wells Bros. Company, Greenfield, Mass., New York branch with A. Z. Boyd, 56 Reade street, have brought out

the adjustable hollow milling tool here illustrated. This tool is designed for use in turrets of screw machines. The company emphasize the fact that this form of tool has been in use in their own factory for a number of



Adjustable Hollow Milling Tool.

years, in which period the weak points in construction have been overcome under their own observation. The cutters are easily and quickly adjusted, and are made of the finest tool steel. The sizes are $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch, the outside diameters of which are $2\frac{1}{2}$, $2\frac{3}{4}$, $3\frac{1}{2}$ and 4 inches, respectively, with shanks $\frac{3}{4}$, $\frac{7}{8}$, $1\frac{1}{4}$ and 2 inches in diameter. When ordering it is important to give the tool number as well as size of the set of cutters wanted.